SIGNIFICANCE OF SODHANA ON THE TOXICITY OF UPAVISHAS

THESIS SUBMITTED FOR THE PRELIMINARY QUALIFYING EXAMINATION FOR THE

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CERTIFICATE

This is to certify that this thesis entitled SIGNIFICANCE OF SODHANA ON THE TOXICITY OF UPAVISHAS submitted by Dr. M. Surendram Nair M.D.(Ay) for the preliminary qualifying examination for the award of Doctor of Philosohy.(Ph.D) in Ayurveda under the Department of Other Sanskrit Studies, Sree Sankaracharya University of Sanskrit, Kalady is a record of bonafide research work carried out by him under my guidance.

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CERTIFICATE

This is a written account of research work done during the period of November 1999 to November 2000 and submitted to the Faculty of Other Sanskrit Studies, Sree Sankaracharya University of Sanskrit, Kalady, to the preliminary qualifying examination for the Doctor of Philosophy (Ph.D.) in Ayurveda at Faculty of Other Sanskrit Studies.

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DECLARATION

I, Dr. M. Surendran Nair M.D.(Ay), part time research scholar for Ph.D.degree in Ayurveda of the Faculty of Other Sanskrit Studies, Kalady, hereby declare that this dissertation for Ph.D degree in Ayurveda is my original research work, and that it has not been previously formed the basis for the award of any Degree/Diploma or other similar titles submitted to any other Universities.

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Pradhamo Devo Bhishak"
The first physician is God

M. Surendran Nair

Dr. M. Surendran Nair.

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PART - 1

INTRODUCTION

The earlist Indian records of medicines are the Vedas Mostly in Adharva Veda and Rik-Veda, the word "Bheshaja" or "oushadhi" indicate the drug which kills the pain These considered mostly of non-poisonous vegitable drugs, where as the description of poisonous drugs are also seen

Poisonous plants have been the subject of practical lore since ancient times Their systematic study, in terms of Modern Science, is often considered to have begun during 16th century, when Swiss Physician PARACELSUS first studied the chemical nature of poisons However, Indigenous systems of Medicine in India had studied and recorded detailed accounts of Piosonous plants way back in 1500 B C

High active drug, that is the drug having the theekshna and ushna qualities need to be used in minimum dosage Any definite statement regarding the fixing of dosage is absent It must be calculated considering Vyadhi, Koshta, Bala etc

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Nowadays the usage of very active potent drugs are increasingly in practice by Ayurvedic Physicians. The potent drugs may be used to the best advantage avoiding the risk to the patient. The range of effects and the limitation of action to each drug must be ascertained for the effective use of drug. So a scientific knowledge about drug is essential for a successful treatment.

The traditional knowledge for indentification and recognition of drugs are fast disappearing. Realising the great polentialities of these drugs, the particular values of the ingredients of each will have to be find out. Inorder to have an idea about the influence of these drugs in the human body, these drugs should be subjected to careful study.

While considering sudden active drugs, we cannot neglect the influence of UPAVISHA DRUGS which came under Sthavara visha group. Before administering it must be properly purified. Otherwise it will produce ill-health to the body. So a detailed study regarding the detoxification of Upavishas are inevitable.

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Upa-visha is a separate chapter in Rasa Sasthra just like Rasa, Maharasa,Uparasa,Sadharanarasa,Dhatu,Upadhatu,Ratna and Upa-ratna.

The aim of my work is to illuminate the importance of Upavisha drugs, which come under Sthavara visha dravyas (1). Discrptions about Sthavara Visha dravyas from the Ayurvedic texts,

A modern outlook regarding the poison,

Concept of Sodhana – Various purification or detoxification processes are included in this work.

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REVIEW OF LITERATURE

Amrita is a life saviour A Drug becomes a life saviour if it is properly used. " Pranadayee" and " Rasayana" are attributed. for rational administration. Visha also becomes amrita if it is properly used.(2)

The word Visha originates from the dhatu "Vish" which means that which flows easily or "Spreads easily". " Sudha Jala" – pure water also indicates the term visham. That one which seperates the prana from the body is also termed as visha. (3)

The term UPA has got the meaning of "Sameepe" or "Nearer to". Another meaning is "Similar to." Upavisha dravyas are the drugs which posses the same qualities of visha.

In Ayurveda prakasha(4) and Charka Samhita (5) the qualities of Vyavayi, Vikashi, Agneya, Yogavahi, Madavaha, Brimhana, Veeryada etc. are illustratted for visha dravya.

Reviewing the mythological origin of Visha is interesting. While Deavas and Asuras were churning the ocean of milk for want of amritha, many objects came out of the ocean before Amritha. One among them

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was a terrible man-like creature with grean hairs, firy eyes and four projecting canine teeths. The entire world became sad seing him, and it was named "Visham", because it caused 'Vishadam" for every body. Later Brahma transformed him and transferred its essence into various objects of plant, animal and mineral origins. It is from the same ocean of milk from which this poison came that the Amritha also was recovered (6)

Visha becomes Amritha by the rational therapeutic application.(7)

Visha spreads easily to all over the body like water Prabhava of visha increases during rainy season. Hence it produces kleda in the body.

The Bible relates the incident of the famished " son of the prophet" who after eating a puree of wild gourds poisoned by Clocynth or Colocynth apple cried out to Elisha 'there is death in the pot". The execution of Socrates in 399 B.C. with a cup of poison of Hemlock raised a poisonous plant to an unprecedented glory. Skakespeare Kills Hamlet's father with a vial of henbane extract (Hyoscyamus niger). In Macbeth he adds Hamlock to the hell-broth mixed by his witches. The early Egyptians, were aware of toxic properties of seonite, henbane and henlock. They even discovered the poisonous effects of such minerals as crude arsenic, antimony, copper and lead.

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Making Visha Kanya, references about beautiful ladies who were trained to eat vegitable poison gradually, in small doses from younger days. The visha will not harm her due to its prabhava. But the visha prabhava spreads to those persons who comes into close contact with them very often causing their death.(8) This was used to eliminate the enemy King in ancient times. This indicates the Satmyasatmya theory of Ayurveda

Arrows fortified with vegetable poison are the earliest examples of man harnessing a knowledge for his own ends. The Greek word for bow is toxin, from which originates the name toxicology. Arrow poisons have great antiguity. Dioscorides points out in the first century A.D.in the time of Nero that poison called toxic because the barians smeared their arrow heads with it. Both Aristotle and Pliny say that the Seythians dip their arrows in a liquid in which they crushed female vipers.

The Moors in Granada poisoned their arrows with aconite. The poison of curare is used by the natives living near the tributaries of the Amason in South America. The arrow poison of the Bari tribe of Central Africa appears to destroy life by a logic action. Sir Samuel Baker describes it as a nulky juice from a species of euphorbia. It is smeared upon the barbed blads of arrow and dries into a resinous layer. Its action is generally confined to the parts

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which it touches producing severe pain and inflammation with vesication and sloughing of the surrounding muscles The other arrow poison was made from the upas tree which grows in Malaya, Java, Burma and Borneo The poison is made by cutting horisontal slits in the bark of the tree and collecting the liquid which exudes. It is concentrated by slow evaporation over fire The poison contains amtiarin a very powerful substance which has been obtained in the pure form and which acts like the principles in fox glove leaves It kills the animal by causing arrest of the heart

Poison used in ordeal is very famous For this vegetable poisonous drugs were used in Africa and is still in practice in remote parts. In Senegambia, Sierraleons and Liberia an ordeal trial was held every year Its purpose was to get rid of the sorcerers For the deaths which occurred in a village and all epidemics, bad harvests, invasions by locusts and fires were believed to be caused by socerers (witch crafts) A French man named Boyo who was in Government srvice in Casamance in the country of Balantes, witnessed on odreal in 1893. The poison used was called Tali, prepared from the plant Erythrophlocum guanines. It contained a heart poison similar to that in foxglove leaves. In another part of Africa around the coast of Calabar a vegitable poison called calabar bean was used as an ordeal poison, when persons were suspected to witch craft. It is the seed of the physostigna venenosum On the calabar coast the plant used to be grown only for the needs of justice. It was sacred watched closely where it was cultivated and it was uprooted where else This beam owes its properties to the presence of an alkaloidal substance called physostigmine The accused were obliged to chew the beans and when they had swallowed them they had to march up and down till the symptoms began Soon he lost the power of

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swallowing and suffered from muscular spasms and convulsions He usually died in half an hour remaining causcious upto death

Another kind of poison was in practice in equatorial Africa called m' bounden or n' Kassa This was prepared from a species of strychnos, probably strychnos incaja and it contained strychnine. The ordeals is Madagascar seem to have been the worst of all. The poison called tanguena or tanguin was on extract of Tanghinia venerifera, a species of Apocynaceae. The effect according to Kollikar is to paralyse the heart In the ordeals which had been going on from time immemorial, an average of 3000 people died on a single occasion. In 1830 the king made up his mind to purge the country of sorceorers and ordered all classes of the population to go through the ordeal, an average of 6,000 died with this poison on that occasion. The natives of Madagascar seemed to think that there was a kind of genie spirit in tanguin which endered the body of the accused man together with the tanguin punishing the guilty but not the innocent.

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Prancharya – the supreme Physician of the King will watch the attendants the King and text all the substances before served to the King as food, drink and other articles of daily use. Various methods for testing the poisoned articles in fire and animals were also prevalent in India. Prancharya was keen in watching the water from wells and tanks for use of King. Protecting the King from poisonous substances were the prime importance. Hence the idea of testing the poison developed.(9)

Vedic Nighantu contained drugs mentioned in Vedas, its period must be prior to Yaska and subsequent to vedic age. Nighantus dealing execlusively with drugs along with certain prepared during the period between 7th century to 15th century A.D.

1. Dravya Gunakara	:	First part deals with metria medica.
2. Nighantu shesha	:	This is a botanical supplement of Abhidhana chintamani of Hemachandra. This contains synonyms of various plants and herbs.
3. Indu Nighantu	:	A medico Botanical work of Indu.
4. Madana pala Nighantu or Madana vinoda	.	Deals with Swastya Samrekshana Vidhi and usage of suitable medicines according to the changing of climate.

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5. Raja Nighantu or Abhindhana chinthamani or Nighantu raja	Discriptions of plants and herbs
6. Sivakosa	Describes the habitat of various plants and herbs
7. Bhava prakash	Some more drugs are also mentioned for phiranga.
9. Kayyadadeva Nighantu	A treatise on Materia Medica in vargas
10. Dravyaguna	Disciptions of drugs and its gunas.
11. Todaranamda Ayurveda Soukhya	Contains narrations of medicinal and other drugs.
12. Dhanwanthari Nighantu	Describes about medical drugs
13. Dravyaguna Shataka	Deals with Indian Meteria Medica
14. Rajavallabha Nighantu	
15 Nighantu Samgraha	
16. Nighantu Ratnakara	
17. Saligrama Nighantu	
18. Ashtanga Hridya Kosh.	

The above authentic documents reveals the Visha dravyas and Nirvisha dravyas commonly used by the Ayurvedic physiccians

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STHAVARA VISHA

Sthavara Visha and Jangama visha are the two cassification of visha. Vegitable poisons and some mineral poisonous drugs are entitled in sthavara Visha.

The sources of Sthavara visha and its names are described in Susruta Samhita and Ashtanga Samgraha. They are ten in number, viz. root, leaf, fruit, bark, milky, exudate, pith, gum, mineral and bulb.(10) The poisons obtained from ten sources are fifty five in number according to Susruta

In Prayoga Samuchaya and Visha Vaidya Jyotsnika the important works of Kerala in this subject we can see differences regarding the sources of Sthavara Visha. Instead of Sara and Dhatu visha of Sushruta, Rasa and Beeja are included. Ripend fruit and Beeja are included in Prayoga Samuchsaya

In Kanda Visha, three drugs posses different varities Four varities of Vatsanabha and two varities of Mustaka and six varities of Sarshapaka can also be seen.

According to Ashtanga Hridaya the Kanda Visha includes Kalakuta, Indravalli, Sringi and Halahala which are very poisonous drugs.

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Sustruta included the root, bark, pith and gum of Karakata as pisons. Like wise the drug Karambha is included in leta visha, phalavisha, and pushapa visha. In fruit and Kanda poisons also we can see the Karambha drug. So the total of number of Sthavara Visha according to Susruta may vary from fifty five .

There are difference in selection of Sthavara Vishas in Ashtanga Samgraha and Susruta Samhita. Vagbhata excluded same visha dravyas of Sustruta and included some other drugs. Both agrees in ten sources of Sthavara vishas. Karaghataka, Karmbha, Maha karmbha, Arka, Kumuthavati and Karakadaka are included in different groups of Sthavara Visha. It may be due to the toxic part of the plant which is more poisonous than other of the plant

In Ashtanga Samgraha and Susruta Samhita the illustrations about the lack of ellaborate descriptions create confusion about the plants. The peculior drugs mentioned in the group of Sthavara Visha are poisonous to the body and it leads to the culmination of ill health due to its toxicity and death.

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CLASSIFICATION OF STHAVAVISHA

Rasarnava –5	Rasasara –18	Charka Samhita
1. Sakthuka	1. Mayura	1 Mustaka
2 Sita musta	2 Kalakuda	2 Poushkara
3 Sringi	3. Sakthuka	3 Kroúncha
4. Krishna visha	4 Binduka	4 Vatsanabha
5. Kalakuda	5. Vatsanabha	5 Balahaka
	6 Sunabha	6 Karkada
	7 Sankhanabha	7 Kalakuda
	8 Sumangala	8 Karaveera
	9. Sringa	9 Palaka
	10 Karkodaka	10 Indrayudha
	11. Musta	11 Thaila
	12. Pushkara	12 Mechaka
	13. Sukla kanda	13 Kusapushpaka
	14. Rektha sringa	14 Rohisha
	15. Haridra	15 Pundareeka
	16. Visha	16. Langalaki
	17 Halahala	17 Anjanabha
	18 Bramarantha	18. Samkocha
		19 Markada
		20 Sringi visha
		21 Halahala and other Mula vishas

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CLASSIFICATION OF STHAVARA VISHA

I.MULA VISHA

Susruta -8	Vagbhata - 7
1. Kleetaka	1. Kleetaka
2. Aswamara	2. Aswamara
3. Gunja	3. Gunja
4. Sugandha	4. Sugandha
5. Gargara	5. Gargaraka
6. Karakhata	6. Karakhata
7. Vdiyu chikha	7. Karkaraka
8. Vijaya	

11 PATRA VISHA

Susruta -5	Vagbhata -5
1. Visha patrika	1.Kala patrika
2. Lamba	2. Lamba
3. Varadarù	3.Varada
4 Karamba	4 Karmba
5. Maha Karamba	5. Krka

111.PHALA VISHA

Susruta -12	Vagbha - 6
1.Kumudwaty	1. Kuwaty
2. Venuka	2. Renuka
3. Karambha	3. Karmbha
4. Mahakarambha	4. Maharambha
5. Karkodaka	5. Mahanaka
6. Renuka	6. Tuvaraka
7. Khadyodaka	
8. Charmari	
9. Bhagandha	
10. Sarpakhati	
11.Nandana	
12. Sarapaka	

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IV. PUSHA VISHA

Sustruta - 5	Vagbhata - 4
1 Vetra	1 Valli
2. Kadambha	2. Renuka
3 Vallija	3 Karambha
4. Karambha	4 Mahakrambha
5. Mahakarambha	

V TWAK SARA NIRYASA VISHA

Susruta – 7	Vagbhata - 5
1 Antra pachaka	1 Karaka
2. Kartariya	2 Karaghata
3 Sauriyaka	3 Karambha
4 Karaghata	4 Mahakarambha
5 Karambha	5 Narchaka
6 Nandana	
7 Narachaka	

VI. KSHEERA VISHA

Sustruta - 3	Vagbhata - 6
1. Kumudaghi	1. Kumudavati
2. Sunhi	2 Dandi
3. Jala ksheeri	3. Sunhi
	4. Arka
	5. Jalini
	6 Vyala

VII. DHATU VISHA

Susruta - 2	Vagbhata - 3
1 Phenasma	1 Phenasma
2 Haritala	2 Haritala
	3 Rektha

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KANDA VISHA

Susruta - 13	Vagbhata - 28
1 Kalakuta	1 Halahala
2 Vatsanabha	2 Vatsanabha
3. Sarshapa	3 Kalakuta
4. Palaka	4. Sringi
5. Kardamaka	5. Sarshapa
6. Variralaka	6 Jalaka
7. Mustaka	7 Kardamaka
8 Sringivisha	8 Vairadaka
9. Prapundarika	9 Mustaka
10. Mulaka	10. Mushkaka
11 Halahala	11 Sakthuka
12. Mahavisha	12. Krounechaka
13. Karkadaka	13 Valaka
	14 Mahavisha
	15 Pundareeka
	16 Galava
	17 Mulaka
	18. Markadaka
	19 Kardaka
	20 Karaveera
	21. Indrayudha
	22 Sangochaka
	23 Langalaka
	24 Thailapeya
	25 Kusapushpaka
	26 Pushpaka
	27 Rohisha
	28 Anjanabhaka

(Ref 11 to 28)

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PROPERTIES OF VISHAS

According to Vagbhatacharya the qualities of visha are ten in number. They are Theekshna, Ushna, Ruskha, Visasa, Vyavayi, Asu, Leghu, Vikasi, Sukshma, Avyak tharasa and Apaki also.(29) Charaka also suggests the same qualities. Instead of Avyakatharasa he mentions Anirdesyarasa.(30) In the place of Anirdesyarasa and Avyakthrasa Susruta includes Apakiguna. But in the total number, no change is seen.

Charaka, Sustruta and Vgbhata agrees in the ten qualities of Visha. But we can see the Apakiguna the eleventh number in Vagbhata. It is clear that the Apaki is a functional property. So it need not be counted.

Ten qualities of Visha

Visha produces some disorders in the body.(32)

1. Theeksha - Actuness.
 Injurious to vital organs obstructs the srotas of vata,
 Produces
 fainting and disturbances of intelligence etc.
2. Ushna - Heat.
 Produces paithika vikaras.
 Vitiates rektha.

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3. Ruksha - Dryness
Provokes Vata
Reduces Kapha in the body

4. Visada - Clearness,
Flows through out body.

5. Vyavayi - Diffusiveness.
Spreads quickly in the whole body and disintegrates the root principles of the body.

6. Asu - Quickness of action.
Spreads quickly in the body and produces bad effects suddently.

7. Leghu - Lightness.
Difficulty in treatment. Distroys Kapha.

8. Vikasi - Expansiveness.
Destroys life by separating all the dhatus from Ojas.

9. Sukshma - Subtleness.
Enters minute tissues of the body.

10. Avyaktharasa- Indistinctness of taste.

The atmospheric water when contacted with earth aequires the specific taste of soil it falls upon. Visha has also no taste in the original stage. But later it develops the taste of the vegetable or thing it exists. So Avyaktharasa guna is not included by Susrutha.(33) Due to the presents of penetrating qualities visha deranges the three doshas.(34)

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Samprapti of Visha

Visha first entres the circulation and vitiates the blood In the next stage it deranges the physiological functions of Kapha, Pitta and Vata respectively at their bases and accordingly symptoms perdominating at the head and neck region, region of the abdomen including blood and also symptoms marked in the lower part of the body below the mbilicus are seen perdominently If the toxin or visha enters has the property to vitiate more than one dosha, symptoms related to the regions connected with the individual dosha will be seen After this, in the third stage effect of the poison enters the heart and caused death of the patient.(35)

Charaka views that Rektha becomes vitiated due to the penetrating qualities of visha. It occuludes the srotas and kills man.(36) Vegbhata opines that the qualities of visha are opposite to Ojas. Intercation takes place after entering of visha into the between Ojas and Visha. The properties of Ojas will destory and the body diminshed soon. It leads to the sudden death.(37)

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Sthavara vishas are known as Moolavisha or root poison. Root is the essential part of the plant. The entire plant depends upon the root system is well known (38). Certain general symptoms are manifested in all types of stavaravishas (39). They are Jwara, Hiccough, Dandaharsha, Galagraha, Frothy vomiting, Loss of taste, Difficulty in breathing and fainting. In Ashtanga Sangraha Hanusthambha is also included (40). In Visha Vaidya Jyostnika, oedema, jwara, mental depression, lassitude, fainting, vomiting, wasting of the body and retention of urine and faeces are mentioned. In Prayoga samuchaya ateesara is also included. Delirium is also added in the general symptoms in Lekshnamritam. Specific symptoms are many

Root poison produces a twisting pain in the limbs, delirium and loss of consciousness (41). Leaf poison causes yawning, twisting pain in the limbs and difficulty in breathing (42) Swelling of the scrotum, burning sensation in the body and an aversion to food are the manifestations of fruit poisoning (43). The symptoms of flower poisoning are vomiting, distension of the abdomen and loss of consciousness (44). Foul smell in the mouth, roughness of the body, headache and secretion of Kapha from the month are the symptoms of bark, pith and gum poisoning (45). The forming from the month, loose motion and feeling of weight in the tongue are the manifestations of milk exudate poisoning (46).

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Discomfort or pain in the heart region, fainting and burning sensation in the talu pradesa are seen in Dhatu visha (47). These poisons manifest in the body very slowly. It becomes fatal only after long time.

Kanda vishas are very strong and dangerous than other poisons. It produces complete anesthesia, shivering and numbness(48). Paralysis of the neck, yellowness of faeces, urine and eyes are seen from Vatsanabha visha (49). Vitiation of Vata, distension of abdomen and grandhi in various parts of body are seen from Sarshapa poisoning(50). Palaka poisoning marked the weakness of neck and difficulty in talking (51). Kardama poisoning produces watering from the mouth, diarrhoea and yellowness of the eyes (52). Pain in the extremities and diseases of head are the symptoms of Variataka poisoning(53) Numbness of the limbs and body shivering are marked by Mustaka poisoning (54). Lassitude, burning sensation in the body and enlargement of abdomen are the symptoms of Sringi visha(55). Redness of eyes and enlargement of abdomen are in Pundarika poison(56). Mulaka poison causes discoloration of skin, vomiting, hiccough, swelling and loss of consciousness(57). Difficulty in breathing and changing the skin colour to brown are marked by Halahala poisoning(58). Mahavisha indicates the manifestation of grandhi and severe pain in hritdesa(59). Jumping up, laughing and biting of teeth are seen in Karkataka poisoning(60).

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Different vegas may manifest in the body in addition to the general symptoms due to the intake of visha dravyas The acharyas have different opinions regarding the numbers of vegas Punarvasu group argue eight vegas but Dhanwantharıyas claim only seven vegas

VEGAS ACCORDING TO ASHTANGA SANGRAHA

First vega	Vitiates rasadhatu
	produces vomiting and
	increases secretions in the month
Second vega	Rekta dhatu deranged
	Twingling sensation in whole body
	yawning and shivering
Third Vega	Mamsadhatu vitiated
	Pruritis, development of small vesicles in the body
	eruptions in the skin and swelling
Fourth Vega	Three doshas are vitiated
	Symptoms developed according to the predominance of
	vitiated doshas
Fifth Vega	Mechanisms of vision affected
	Hence blindness
Sixth Vega	Hiccough
Seventh Vega	Severe breaking pain in the shoulder regions
Eight vega	Death (61)

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VIEWS OF CHARAKA

Charaka gives more different symptoms than Sangraha even though agrees with the eight vegas. In first, second, fourth and fifth vegas, more descriptions are mentioned (62).

VIEWS OF NAGNA JITH

First vega : Derangement of Rekthadhatu

Second Vega : Development of swelling

Third Vega : Twingling pain

Fourth Vega : Jwara, fainting

Fifth Vaga : Pandu, Dryness of mouth and tangue

Sixth vega : Development of Hridroga

Seventh : Death (63)

Indological Truths

VIEWS OF VIDEHAPATHY

First Vega : Fainting
Second vega : Hridroga
Third vega . Sirassoola
Fourth vega : Apathantraka
Fifth vega : Hiccough
Sixth vega : Vitiation of marmas
Seventh vega : Death (64)

VIEWS OF SUSHRUTA

First Vega : Tongue becomes numbed and colour dark brown Fainting, difficulty in breathing.

Second Vega : Shivering, lassitude, burning sensation, severe pain in throat. Visha affects Amasaya and produces pain in hritdesa

Third vega : Dryness of thalu, severe pain in stomach, Eyes become swollen. Colour changes to haritaka

Fourth vega : Extreme heaviness of head, excessive salivation, discoloration of skin, breaking pain in joints

Indological Truths

Fifth vega : Three doshas are aggravated.
Begins pain in pakwasaya

Six vega . Loss of consciousness,
Excessive diarrhea

Seventh vega : Breaking pain in shoulder regions and waist
complete stoppage of respiration (65).

The views in Astanga Hridaya is same as in Susruta samhita. But in seventh vega more systems such as tremor, lassitude and vomiting are included in first vega and in seventh vega death is also mentioned(66). Alambayan describes the seven vegas in a different way. The seven body parts afected by vegas are discribed Any grouping or symptoms in each vegas are not illustrated. Narrations about the vegas are same in Ashtanga Samgraha(67).

Indological Truths

AFFECTED DHATUS		VEGAS
Rektadhatu	:	First vega
Mamsadhatu	:	Second vega
Asthidhatu		Third vega
Majjadhatu	:	Fourth vega
Sukradhatu	:	Fifth vega
Vasa upadhatu	:	Sixth vega
Snayu upadhatu	:	Seventh vega

AFFECTED KALAS		VEGAS
Mamsadharakala	:	First vega
Rekthadhara Kala	:	Second vega
Medodhara Kala	:	Third vega
Sleshmadhara Kala	:	Fourth vega
Purishadhara Kala	:	Fifth vega
Pittadhara Kala	:	Sixth vega
Sukradhara Kala	:	Seventh vega (68)

Indological Truths

Visha dravya after entering in to the body manifest the seven vegas one by after affecting the seven Kalas The indication of the vegas are the effect of visha in each kala and dhatu The vegantharam - the action known between the inter kalas took place in little time. Otherwise it is terminated as Madhyavarthi kalam by Dhanwandari (69). Kala is the structure which separates dhatus from their asayas, opines Susruta. The visha affects the entire body by spreading to dhatus and asayas. Visha vegas in animals and birds are described in Charaka samihita. Four vegas are mentioned for chathushpada and three for birds (70).

More details are illustrated about the prabhava of visha in Charaka samhita. Visha creats more complication according to the prakritis of patients. Sareerika and manasika prakrities of patients stand vital position in the manifestations of visha prabhrava (71). Vaghhata gives more information regarding visha prabhava . The thikshna property of visha is the main prabhava in poison The nature of visha is the main reason for the doshic and asaya vitiation Vataja diseases are due to vitiation of vatasaya accompanied by kapha vikaras. Pittaja diseases are due to the vitiation of pittasaya, followed by kaphavikaras Likewise kaphaja and pittaja rogas are due to the kaphasaya vitiation. the quality of the visha is the important factor for action of poison(72)

Indological Truths

Dosage of Sathavaravisha and indications

Heena	-	Four yavas
Madhya	-	Six yavas
Uthama	-	Eight yavas
Keed Dashta	-	Two yavas
Vicharchika Dasha	-	Thila pramana

The usage of sthavara visha is restricted if the blood is vitiated by visha(73, 74) If the Mantras and Oushadhas are ineffective, the application of visha oushadha can be undertaken Poisonous medicine is advised to take in between fifth ad seventh vegas only prior sanction from the authority also be obtained for this treatment(75)

For the jangama visha poison, the admnistration of sthavara visha is beneficial Likewise for sathavara visha poisons the application of jangama visha is beneficial (76)

Rapid circulation of poison in the whole body is due to the extrinsic and intrinsic causes Thereby the sareerika and manasika doshas are vitiated and thus the poison disturb the body(77)

Indological Truths

Sadhyasadhyata

Sadhya	: Kaphasthana
Krishrasadhya	: Pitta sthana
Asadhya	: Vata sthana

Exception is seen by doing more effort by the physician (78).

Remedial measures

For all poisonings, twenty five remedial measures are mentioned in Charaka samhita. The condition of the patient must be taken into account. It is excluded for stharvara Visha poisoning (79).

The nature of doshas, nature of asayas affected by poison must be studied before the treatment. It should not vitiate the doshas or poison. An equipoise must be kept in between visha and dosha(80).

Indological Truths

Specific treatments for the three doshas in poisoning

Visha in kaphasthana	:	Alkaline antidotes Swedana Siravyadha Vamana Lepana with ruksha, theekshna, ushna drugs. Kashaya, Katu, tiktha rasa aharas (81)
Visha in Pittasaya	:	Madhu, Dugdha, kangi, Grita, Seetha parisheka Avagaha, Kashaya, Madhura, Tiktha rasa aharas with gritha (82).
Visha in Vatasaya	:	Swedana, asthapana, anuvasana, usage of Nata and kushta. Madhura, Amla, Levana, rasa aharas with gritha

Grita can be used for lepana. Indication of mamsa is also mentioned 83).

Indological Truths

Special treatment according to vegas

First vega	Vamana, seetajala parishechana (pouring cold water an body) Prativish dravyas (Anti-poisonous drugs) mixed with makshika and Gritha
Second vega	Vamana
	Verechana
	Agada as in first vega
Third vega	Prativisha dravyas,
	Nasya
	Anjana
Fourth vega	Prativisha dravyas with sneha
Fifth vega	Prativisha dravya with kwadha of Madhuka
	Anupana Madhu
Sixth vega	Ateesarachikitsa
Seventh vega	Avapeedaka sneha pana
	If required, patient's scalp should be incised in the shape of kakapada and fresh flesh with blood should be kept in the incision For this flesh of goat, cow or cock are used (84)

Indological Truths

Treatment in veganthara

(In between two vegas)

Administration of " Seeta yavagu" with the kwadha of koshataki, agnika, pata suryavalli, amrita, abhaya, sireesha, kirihi, selu, giryahva, rajanidwaya, punaravadwaya, harenu, trikatu, sariba and bala mixed with madhu and gritha also mentioned(85)

Gritha is highly recommended for all kinds of visha vikaras Internal as well as external use of Gritha is highly benficial (86) In Ayurvedic Texts so many gunas are attributed to gritha So the Physician must be cautious in administering the gritha in visha vikaras Without the usage of gritha we cann't complete the treatment of visha vikaras

Indological Truths

UPA VISHAS

In Bhavaprakasha Nighantu

1 Arka ksheera
2 Snuhee ksheera
3 Langali
4 Karaveeraka
5 Gunja
6 Ahiphena
7 Dhatura

In Rasa tharangini

1 Arka ksheera
2. Sunhee ksheera.
3. Langali.
4 Kara veera.
5 Gunja.
6. Ahiphena.
7. Dhanura.

In Sabda Kalpadruma

1 Arka ksheera
2 Snuhee ksheera
3 Kaliharika.
4 Karaveeraka.
5 Dhatura.

In Rasaratna samuchaya

1. Langali.
2. Visha mushti.
3 Karaveera.
4. Jaya.
5. Neelaka.
6. Dhatura.
7 Arkasheera.

Indological Truths

In Brihat Rasa Raja Sundara

1	Snuhi
2	Arka
3	Langali
4	Gunja
5	Hayari
6	Vishamushti
7	Jayapalam
8	Dhatura
9	Aphooka

In Rasentra sara sangraha

1	Arka
2	Sehunda
3	Dhatura
4	Langali
5	Karaveeraka
6	Gunja
7	Ahiphena

Indological Truths

In Rasaraja tarangini	According to Amarasimha.
1 Arka ksheera	1 Arka ksheera
2 Snuhee ksheera	2 Sunhee ksheera
3 Langali	3 Langali
4 Hayari	4 Karaveera
5 Vishamushtika	5 Dhatura
6 Jepala	
7 Dhatura	
8 Gunja	
9 Ahiphena	

Indological Truths

PART - 2

POISON – MODERN REVIEW

Poison may be defined as any substance (solid, liquid or gas) which after being introduced into the living organisms or brought into contact with any part there of produces by its chemical action on the tissues an injurious effect

In 1930 the Indian Legislature passed The Dangerous Drugs Act, with a view to regulating the cultivation, manufacture, import, export, possession, sale and use of dangerous drugs, which extends to the whole of India and provides uniform penalties for offences relating to the dangerous drugs

Poisoning – catttle poisoning and human poisoning are more in India Organic vegitable and Inorganic- metallic and non metalic drugs are used for poisoning For the purpose, Nuxvomica, Strychnine, Madar, Dhatura, Aconite and Oleander are usually used for the purposes of homicide The poisons employed to destory cattle are yelow oleander and some times aconite Accidental poisoning occurs, when cattle happens to eat young plants

Indological Truths

Poisons are usually absorbed into the system through the blood and there by produce their direct remote actions on the body It is not possible to define the boundary between a medicine and a poison A medicine in large doses can be poisonous, and a poison in small or therapeutic dose is often a medicine Bacterial toxins are not regarded as poisons in the ordinary sense In the definition of poison the motive or intent is thus taken into consideration

Indological Truths

CLASSIFICATION OF POISONS

Poisons are classified according to the action they produce

CORROSIVES

They are the poisons, which destory the tissues by their direct chemical action eg , strong mineral acids, their carbonates and alkalies Dilute mineral acids are not corrosives but act as irritants

IRRITANTS

They are the poisons which by their specific action set up irritation and inflammation

These are of following types

INORGANIC

1 Non-Metallic,eg phosphorus and halogen group of drugs, ie Iodine, Bromine, Chlorine

2 Metallic – heavymetals, eg Arsenic, Aintimony, Mercury, Lead, Copper, Zinc, Gold, Silver etc

Indological Truths

ORGANIC

1 Vegetables eg Aloes, Colocynth, Akandu (Calotropis gigantica) or Madar (calotropis procera), Castorseeds, Croton oil, Abortifacients like Ergot, Chitra , Lal Chita etc

2 Animal secrections, eg Snakevenom, Insect-bite (Scorpion bite), Cantharides etc

3 Organic acide, eg Oxalic acid, Acetic acid etc

MECHANICAL

1) Powdered glass

2) Diamond dust

3) Chalked hair

4) Dried sponge

NEUROTICS

They are poisons which by their specific action on the nervous system (brain, spinal cord and nerve endings) and also on the heart produce injurious effects like delirium, coma, tetanic spasam, symptoms of syncope or asphyxia, etc

Indological Truths

They are of the following types -

1 CEREBRAL POISONS are those which act on brain and cause death by coma They are again sub-divided into

a) Narcotics, eg Barbiturates, Opium and its alkalodis

b) Anaesthetics, eg Chloroform, Ether and Cocaine

c) Inebrients - eg Alcohol, Ether (when swallowed) Carbolic acid

d) Delirient eg Datura, Canabis indica, Belladonna, Hyoscyamus

2 SPINAL POISONS act on the spinal cord eg Nux vomica or its alkaloids (Brucine, Strychnite and Gelsemium)

3 CARDIAC POISONS act on the heart
eg Digitalis, Aconite, Oleander, Tobacco etc

4 ASPHYXIANTS – Piosonous irrespirable gases like CO_2 C0, Coal gas, (Which contains CO and CO_2) Halogen group, etc

4 PERIPHERAL POISONS act on the peripheral nerve endings, curare, conium

Another classification of poisons is according to the lesions they produce viz topical cyto toxics, systemic poisons and miscellaneous These lesions give rise to functional disturbances which the patient presents as symptoms and signs

Indological Truths

ROUTES OF ADMINISTRATION

Poisons are introduced into the system through the following routes -

1 Orally ie By ingestion - to be principally absorbed from the gastric mucosa In some cases, particularly the vegetable irritants are absorbed from duodenum and upper part of intestine Empty stomach absorbs quicker

2 Inhalation through air passages (bronchial mucosa)

3 Absorption through skin – intact or broken

4 Injection into the blood vessels or into the subcutaneous tissues

5 Introduction into the natural orifices such as rectum. vagina, urethra, nose, eye, etc

6 Application on a wound

7 Spinal route is intrathecal injection

8 Application to a scrour surface

Indological Truths

CHANNELS OF ELIMINATION

Primarily, the poisons are eliminated through urine (by kidneys), stool and bile, milk, sweat etc and other mucous and serous secrections from the additional pathways for eliminating poisons

ACTION OF POISONS

Direct

1 Corrosive action – as by strong acids and alkalies
2 Inflammation and irritation – as by irritants like As, Hg or by dilute mineral acids
3 Neural effect – tingling and numbness caused by aconite or change in shape of the pupils by atropine and eserine

Indirect

1 Shock – caused by large dose of corrosive poison
2 Tetanic spasm – as in Strychine or Nux Vomica poisoning
3 Nephritis – as is Cantharide poisoning
4 Syncope – as is Tobacco, Oleander or Aconite poisoning
5 Gastro – enteritis – as in Arsenical poisoning

Indological Truths

Combined Actions (Direct and Indirect)

Certain poisons like arsenic arbolic acid, phosphorous and oxalic acid, etc act locally by their irritant effects on the alimentary canal and also produce toxic effects after being absorbed into the system

Poison is absorbed and circulated with the blood before it begins to manifest its effects Liquid poisons, when swallowed are more absorbed than solid Soluble poisons are absorbed more than insoluble Some solid substances which are but little soluble are however very soon absorbed in sufficient quantity to produce well marked symptions Others which are very soluble in water, may become dissolved in the acid mucous secretions of the stomach and they are readily carried into the blood Poisons are absorbed by the blood versels of the part to which they are applied The seats of these vessels are thin and prous and readily imbibe any liquid placed in contact with them or any solid which is soluble in the surrounding fluids, as the serous fluid of the cellular tissue, or in the mucous fluid of the mouth, stomach and intestines Osmosis or a

Indological Truths

penetration of the coats then takes place with great rapidity and the liquid or gaseous poison, when once in the blood, is rapidly carried by it to all parts of the body If the minute vessels are out through as in a wound, the poison at once mixes the blood, and is circulated with it This is not absorption, but injection and the effects of all poisons are thus displayed with the greatest rapidity and intensity

Entrance into the blood as the result of absorption or injection, is a condition necessary to the action of a poison This was the doctrine long since taught by Magendie and in more recent time, it has received confirmation from the experiments of Dr Blake, M Bernard, Muller and other physologists M Bornard has demonstrated that until a poison has reached the arterial capillary system as the result of absorption, however deadly it may be, there is no symptom, indicative of poisoning Strychnia or Prussic acid indicative applied directly to the brain, spinal marrow or nerves, produces no effect or only a slight local action after sometime but when a portion of either of these poisons is carried by absorption into the arterial capillary system, the symptoms of poisoning appear Hence it follows that whatever prevents the entrance of a poison into

Indological Truths

the blood, arrests the symptoms of poisoning It had been already proved by the experiments of Sir R Christion that extract of nuxvomica, put into a wound in the paw of a dog produced on symptoms of poisoning when a ligature was placed tightly around the leg, but when this was relaxed, tetanic symptoms were soon produced and thus poisoning might be made artificially intermittent This fact proves that a ligature cannot altogether keep out the poison, but it may retard its operation and give time for treatment and result shows that the most potent and insidious of all poisons operates as such as the body, only after it has been absorbed and diffused by the circulation

The blood vessels including wounds

This mode of entrance into the body has rather a physiological than a medico legal interest When a poison is introduced directly into the blood, either by injection into a vessel or by a wound, it will be understood that its effects are rapidly produced Sir R Christison found that when the nuriate of coma was injected into the femoral vein of a dog, he was unable, with his watch in his hand to notice any approciable interval between the moment at which it was injected and that in which the animal died The interval did not exceed three or at most four seconds

Indological Truths

The skin and cellular membrance

The process of absorption is modified, not only by the state of the poison, but by the nature of the surface or the texture of the part to which it is applied Every substance acting as a poison must pass into the body, either through the skin or through the mucous membrance, and there are many circumstances which may favour or retard absorption by either of those channels Thus in the skin covered with cuticle the process of absorption is slow The membrane which is here interposed between the poison and the coats of the blood vessels, is not readily penetrated When however, the cuticle is removed and minute vessels are exposed either on the surface of the cutis or as a result of granulation, then the penetration takes place readily

The unbroken skin is naturally covered with an oily or sebaceous secrection and this is found to favour the entrance of all solid substances that are in fine power, or that are left in a finely divided state on the cuticle, by the evaporation of their aqueous solutions, but on the other hand it retards or prevents the introduction of those poisons which are dissolved in water

Indological Truths

Cases of poisoning through the skin have been called cases of poisoning by absorption but all cases of poisoning are the result of absorption There are only a difference in time As a rule, the symptoms are more slow in appearing when the poison is applied to the skin, but they resemble those produced by the poison when it enters the body by stomach

Poisons are rapidly absorbed when injected into the celluar membranee beneath the skin This has been, of late years, adopted as well known mode of treatment, under the name of hypodermic injection

Muller determined, by experiment, that the rapidity of absorption through membrane is in an inverse proportion to the thickness of their epithelia or surface coverings For this reason, poisons pentrate more rapidly by absorption through the mucous membrane of the eye, mouth, alimentary canal, than through the skin, and owing to its extreme tenuity, more rapidly through the membrane of the air cells of the lungs than through any other tissue The effect here, when the poison is in a gaseous state resumbles that which results from the direct introduction of a poison into the blood by injection

Indological Truths

The lungs and air passages

The mocous membrane of the lungs is well adapted for the absorption of aerial poisons (gases and vapours) and conveying them at once over a large area into the blood

Absorption by stomach

In all ordinary cases of poisoning the poison enters the stomach and passes thence into the intestines Thus the mucos membrane of these organs is the medium by which the substance is absorbed and conveyed into the blood Absorption by the stomach is modified by the full or empty condition of the organ The process takes place more rapidly when the stomach is empty or the person is fasting The acid secretions of the stomach increase the solubility of any substances and promote their absorption It is a remarkable fact that some poisons which operate fatally through a wound, or by injection into the blood, resist the absorbing action of the stomach in some cases entirely, in others partially Poison when taken into the stomach, it may be excreted by the urine and other fluids as rapidly as it is absorbed through the mucos membrance In the case of an animal fasting, absorption would go on to a greater extent than elimination The poison would thus accumulate in the blood and produce its usual effects

Indological Truths

The Intestines

The mucos surface of the small intestines absorbs poison with greater rapidity and uniformity than that of the stomach and from experiments on dogs performed by Roselli and Gastano Strombio, the same difference is observed with respect to the rectum.

Absorption does not appear to be necessary to its fatal action, yet it is undoubted that when this substance is given in small doses for medicinal purposes, it is conveyed in some form into the circulation – a fact established by the peculiar discolouration of the skin, of the face and hands produced by its long continued employment in medicinal doses

Elimination and Deposition of Poisons

It is now generally admitted by toxicologists that piosons which have been carried into the blood by absorption through the skin or mucous membrance are diffused throughout the body A portion is eliminated by the secretions while another portion is deposited in the tissues but elimination commences soon after the poison is absorbed and continues so long as the person survives its effects All the secrections share in this process of elimination

Indological Truths

Thus organic and inorganic poisons have been found in the urine bile milk saliva serum of the serous membranes and in the mucous secrections of the mucous membrances Of all these liquids the urine appears to be principal and most constant channel but there is reason to believe that same poisons pass more rapidly by certain secretions than others

If a poison is eliminated by the urine or other fluid, as rapidly as it is carried into the blood by absorption, no symptoms of piosoning are produced If it is more rapidly absorbed than eliminated, it will accumulate in the blood and operate with fatal effect It is therefore not so much the quantity taken as the quantity absorbed in a given time, which determines the lethal operation of these agents This quantity many be so small that although it may produce symptoms, it will not destroy life This is occasionally witnessed in medical practice, where medical doses of arsenic strychnia, or prussic acid have been slightly exceeded It is at this point that we reach the boundary which separates a poison from a medicine

It will be understood therefore, that the accumulation in the blood of a certain quantily of poison is required before symptoms The occurrence of certain symptoms may be taken as the indication as the poison having reached the blood Thus faintness syncope, general depression with an undesirable uneasiness are among the first symptoms caused by absorbed arsenic

Indological Truths

Absorbed morphia is indicated by drowsiness stupor and an irresistible tendency to sleep and strychina by shivering and shuddering with convulsive twitchings of the mussels

As a rule, therefore poisons which are absorbed ,donot accumulate in the body unless elimination is arrested or retarded

MODIFYING FACTORS

QUANTITY

A large dose of arsenic may cause immedicate death by shock while a small quantity will produce only gastro-enteritis If oral dose is considered as one unit, rectal dose may be considered as 1 ½ - 2 units and the hpodermic podermic dose will be about ⅓ – ¼ unit to produce similar quantitative damage

FORM OF THE POISON

a) Physical state

i) Gases act most rapidly
ii) Liquid next
iii) Fine powders, still less rapidly
iv) Coarse power or solid mass least rapidly

Indological Truths

b) Chemical combination - It may make it inert

i) Acids with alkalies

ii) Strychine with tannic acid

iii) Ag NO_3 with HCl

c) Mechanical combination – The action of poison are weakened when mixed with inert substances (corrosive poison mixed with water or taken in full stomach) Absorption of poison takes place slowly in full stomach and intestine particularly, if the stomach contains fatty and protein foods

METHOD OF ADMINISTRATION

Rapidity of action depends on the route of administration This is enumerated below accordingly.

i) Intravenous injections – quickest action

ii) Inhalation in gaseous form

iii) Application to a wound

iv) Intramuscular injection.

Indological Truths

v) Application to mucous membranes, eg. when swallowed especially when the stomach is empty or when it is introduced into the rectum.

vi) Application to unbroken skin - Here rate of absorption is the slowest

CONDITION OF THE BODY

i) Habit – A man who habitually takes alcochol, opium, canabis indica or cocaine becomes more tolerant to it

ii) Idiosyncracy - Some people are susceptible to certain poisons and cannot tolerate some drugs, while others can. Mercury (Hg) produces salivation in some persons, while there may be no such change in others. Drugs producing idosyncracy are opium, Hg, Cocaine and Quinine.

iii) Diseases - In some diseases a very small quantity of poison produces fatal results such as Hg and Opium in Kidney diseases In Tetanus a large dose of opium is tolerated

Indological Truths

(iv) Sleep and intoxication retard the action of poison

(v) Age - Certain drugs are not tolerated by children such as, opium, while they, tolerate some other drugs better eg Hg , Belladonna *and Sulphur group of drugs*

(vi) Cumulative effect - By taking or inhaling certain poisons in small doses for a long time, a cumulative effect is produced, which may suddenly bring about fatal results, eg Arsenic, Hg, and Lead Accumulation tends to occur, when the rate of elimination of the poison is slower than the rate of administration Metallic poisons are prone to act as acumulative poison, while organic ones are as a rule quickly eliminated

Indological Truths

FATE OF POISONS IN THE BODY

Unless the poison is given in small amount and in liquid state, the greater part of it may be lost by vomiting or diarrhoea Once it has been absorbed, it may be dealt with by the body in one of several ways It may resist all the attempts of the organism to alter its chemical composition and be excreted unchanged for in the urine More frequently, it will be parly or competely metabolise. (bio transformation) commonly, the poison is not competely destoryed by the metabolic processes and it may be detected in the original form or in the form of intermediate products in the tissues or the excreta. The liver is essentially the guardian of the body against poisons, and is therefore the organ in which the poison or its metabolites are found in the greatest amount From liver, the poison passes into the general circulation and exerts its action either on cells of a particular organ or tissue for which it has an affinity, or on the cellular tissues in general

The main route of excretion of the poison or its end products is the urinary tract but other channels are the intestine (usually the mucosa of the colon) The bile, the sweat glands, saliva, mucous or serous out flows, breast tissue (during lactation), and the lungs For practical purposes, however, exertion in the urine and faeces is by far the most important

Indological Truths

Certain tissues such as the epidermis, nails and hair, may retain inorganic poisons, such as arsenic, after it has been eliminated from the rest of the body, and the bony skeleton may hold such poisons as lead and radio active metals for long periods

TREATMENT OF POISONING

The treatment of the patient consists of

1 Removal of the poisonous material from the body
2. Administration of antidotes
3 Elimination of poison by excretion and
4. Sypmtomatic treatment

DECTCION OF POISONS

Chemical Examiner extracts poisons by means of STAS OTTO PROCESS (alkaloidal poisons) or by animal experiments, where poison mixed with food are allowed to be eaten by the animal. The cats are generally used for Datura and Belladonna poisoning. Pupil will be dilated for about a week Poisons many be detected by analysis from the following substances

a). Before death -

i) Urine or stool.

Indological Truths

ii) Vomit

iii) In food or other suspected articles

b) After death -

i) stomach and intestinal contents

ii) Liver, Kidneys and other parts of the body

iii) Urine

When a poison is found by analysis, it does not necessarily mean poisoning It might have been introduced through food or natural opening in order to support a false charge, or it may be due to accidental contamination

The following are the fallacies -

a) The total quantity of poison in the Viscera of an individual may be less than the minimum fatal dose and the case may yet be one of death due to poisoning because a large amount might have been eliminated by vomiting, excretion, etc

b) Quantity sent to analysis may not be sufficient for analysis of the poison

c) Poison might have undergone chemical destruction by oxidation and putrefaction This occurs in organic poisoning only and not in inorganic poisoning Organic poisons are destroyed by putrefaction after death Arsenic, antimony, alochol, strychnine and zinc chloride prevent putrefaction for a long time

Indological Truths

VEGETABLE IRRITANTS

Vegetable irritants when taken in large dose, produce symptoms of gastro – intestinal irritation, vomiting and diarrhoea Some of them affect brain and spinal cord Death is generally caused by failure of heart and due to exhaustions When applied externally to the skin, they produce inflammation, irritation, pustilar patches, vesication or even ulceration of the parts

eg Semecarpus Anacardium
Calotropis Gigantea
Calotropis procera
Croton seed (Jaypal)
Castor Seed (Ricinus communis)
Plumbago Zeylanica
Plumbago Rosea
Abrus Precatorius
Capsicum Annum (Chillies)

Indological Truths

PART - 3

Indological Truths

CONCEPT OF SODHANA

Introduction

In Ayurveda the science of life, the word 'Sodhana' is used in various aspects in different meanings Sodhana is having an important role in all the eight angas or parts of Ayurveda Literary meaning of the word sodhana is purification By doing the sodhana process, impurities in the body can be eliminated

In Kaya chikitsa, Chikitsa is broadly devided into langhana & brimhana (87) Langhana is further devided into sodhana and samana (88) In this, Sodhana is more important because reccurence of disease after sodhana is less compared to samana chikitsa Before sodhana poorvakarma ie, snehana and swedana should be done to direct the vitiated doshas to koshta From there vitiated doshas are expelled out by various sodhana processes According to Vagbhada there are five sodhana processes They are nirooha, vamana, kayareka, siroreka and asravisruthi According to Charaka asthapana, anwasana, vamana, v irechana and

Indological Truths

nasya are pancha sodhanas In Balachikitsa vamana is most important sodhana process In childhood, kapha is the predominant dosha So most of the diseases of the children will be kapha predominant in nature Vamana is the best method of eliminating the vitiated kapha

Thus vamana became important in balachikitsa Virechana is indicated only in case of emergency Prathimarsa nasya and mathra vasthi are indicated for children also

In Graha chikista along with daivavyapasraya chikitsa, nasya is also important Various drugs are indicated in the classics of Ayurveda for the treatment of grahavesa Various oshadhayogas are indicated for the sirovirechana In oordhwanga chikitsa nasya is having the most important role Becuase nose is considered as the opening of siras The vitiated dosha from the ordhwanga can be eliminated through the nose The medicines applied through nose enters the ordhwangavayava directly and the action will be faster, compared to systemic administration

In Salyathantra also sodhana is playing an important role Susrutha includes sodhana in shastirupakramas It includes visravanam, vamanam, virechanam, chedanam, bhedanam, daranam, lekhanam, vyadhanam, varthi, kalkam, sarpi, thailam, rasakeriya, avachoornanam etc

Indological Truths

These treatments are indicated for the vrana sodhana The medicines used should be prepared with sodhana drugs After sodhana, the vrana will become sudha Then only ropana karma can be administred According to Susrutha thilakalka, nimbapathrakalka and kshoudra are best for vrana sodhana

In vishachikitsa all the sodhana process are having important role to eliminate the visha from the body The five sodhana process are applicable to three types of visha that is, Sthavara, Jangama and Krithrima visha By doing the sodhana process, the visha in the body can be eliminated and then samana chikitsa can be administred for the complete recovery from the toxic manifestations

In rasayana chikitsa, before administering rasayana, the body should be purified by asravisrava, vamana, virechana and nirooha If the rasayana drugs are adminstered without proper purification, there will not be much benefit from the rasayana chikitsa Some yogas are described in Ayurvedic classics for the sodhana of body like harcethaki, amalaki, saindhava, nagara, vacha, haridra, pippali, vella, guda with ushnambu After these sodhana and samsarjana, yavanna should be given for 3, 5 or 7 days for the complete sudhi of body and mind Only after this rasayana should be adminstered

Indological Truths

In vajeekarana chikitsa also sodhana place an important role Before administering the vajeekarana yoga snehana, swedana, vamana and virechana should be done Then nirooha and anuvasana should also be given The nerooha and anuvasana should include ghritha, thaila, rasa, ksheera, sarkara and kshoudra After this processes, the vajeekarana yogas can be given

In Swasthavritha sodhana is having a prime position for swasthya samrakshana While describing the rithucharya, Acharya describes the importance of sodhana in rthu sandhi to normalise the doshas which are vitiated due to the kaphaprabhava In varsharithu charya, asthapana is important because here prakopa of vayu is taking place In saratcharya vireka and rekthamoksha are important because here predominant dosha is pitha In vasanthachariya, theekshna vamana and nasya are indicated to eliminate the vitiated kapha In dinacharya also danthadhavana, snana, navana etc are described to eliminate the impurities from body

In Yogasasthra shadkarmas are described for the sodhana of the body They are dhouthi, vasthi, nauthi, thradanam, noullikam and kapalabhathi These processes will eliminate the impurities from the body and will help the purification of the body

Indological Truths

In Prakrithi chikitsa, the root cause of diseases are described as the impurities present within the body Upavasa is indicated to give the pranasakthi a chance to eliminate the impurities from the body Pathyahara are also indicated to avoid deposition of impurities in the body

In Rasasasthra and Bhaishajya kalpana, sodhana is having the most important role before the preparation of a medicine (89) To make a substance eligible for the preparation of a formula or to get the desired effect, it should undergo different processes These processes are called samskaras Samskaras will change the properities of the drugs These are brought about by various units of operations like treatment with liquids, heating, washing, churning, storing, maturing, flavouring, preservation in containers etc Samskara aims at alteration of the properities It includes processings, before administration with specific objectives The aim could be to standardise the toxicity or undesirable effect of a drug and to increase the efficasy

One of the technique of samskara is known as sodhana, the process of purification Sodhana is the process by which physical, chemical and natural impurities are removed Sodhana will raise the potency effectiveness of drug, nullify the toxicity After sodhana, smaller doses are enough and there will not be adverse reactions Rapid response will also be present

Indological Truths

Defenition of sodhana

Separation and destruction of unwanted toxic effects (doshas or malas) from the metals, minerals and some particular herbal drugs by the prescribed methods that is with herbal juice, decoction, milk, thakra, ashtamoothra etc by peshana, mardana, bhavana, patana, nirvapa, prathivapa etc

If the pathogenic agents are present in the body no treatment will be successful They should be expelled out from the body The expulsion of malas from the body is known as sodhana The doshas can be expelled in the urdhwamarga or adhomarga These definitions are suitable in the case of rogachiketsa

Classification

Sodhana can be classified according to different aspects

1 According to specificity

a **Samanaya sodhana**

If the sodhana process is general that is if it is given for a group of drugs, it is called samanya sodhana Example for Sadharana rasa group trituration with mathulungadrava and ardrakadrava for three times and then drying is described as the samanya sodhana

Indological Truths

b **Visesha sodhana**

For Gouripasana (a member of sadharanarasa) karavelliphalarasa in dolayanthra is described as a visesha sodhana

II **According to the nature of impurity**

Physical impurity

Physical impurities may be present with the drug like stone, sand etc in the market sample These can be removed by physical methods such as

a Hand picking

b Winnowing

c Sieving

d Magnetic separation

e Washing

f Filtraction

Chemical impurity

In the case of metals and minerals some chemicals may also be present with the drug There are chances of adultering the drug with cheap chemicals for getting more porofit Parada is an exmaple Naga or vanga may be added to parada for getting more profit If we use it as such, it may cause jadya, admana, and kushta The samskaras of parada will help to eliminate these doshas and make parada a good medicine

Indological Truths

Natural impurity

Certain substances are injurious to body by their nature They are termed as natural impurities Examples of these are visha and upavisha

III According to the process

a. Washing

By washing the drug with water, the physical impurities like sand stone etc can be removed

b. Sifting

It is a method of separating the impurities using a sieve. This method can be employed if the particle size of drug and impurity are different

c. Elutriation

It is a process by which a substance is pulverised and mixed with water In this operation the heavier grains settle to the bottom while the lighter ones are poured off with the liquid to another vessel Example Jaggery

Indological Truths

d. Lixivation

It consists of the separation of soluble salts from a solid compound by dissolving the latter in water decanting the supernatant fluid into another vesel The liquid is then evaporated to dryness and the drug can be obtained Example navasara

e. Filteration

It consists of the removal of insoluble solid particles from a liquid to such an extend that whole of the solid particles are removed

Example Parada

f. Decantation

In this the solid particles are first dissolved in a liquid or held in suspension and then allowed to be deposited at the bottom of the vessel Upper layer of the liquid will become clear after an intervel Then it can be decanted or drawn off The settled material can be collected and dried

Example Chalk

Indological Truths

g. Trituration

It is a process by which a solid is reduced to a very fine powder by continuous rubbing in a mortar

Example Gandhaka

h. Chrystallisation

Solid bodies are devided into two groups

(a) Those which are capable of forming chrystals

(b) Those which cannot be chrystallised

Chrystallisation consists in obtaining the bodies in a chrystalline form from a solution either by evaporation, cooling, precipitation, fusion or by sublimation The size of chrystals varies as the process is carried on slowly or rapidly

Example Navasara

i. Sublimation

It is a process in which a volatile solid is first vapourised by heat The vapours so formed is condensed as a deposit on the surface of another vessel The deposit is called sublimate The deposits are known as flowers as they are in a fine feathery state

Indological Truths

An apparatus called urdhwapathana yanthra is used for sublimation It consists of an earthern vessel in which the volatile solid is placed This is covered with another hollow earthern basin with mouth facing down wards and their edge are sealed with clay To the lower dish heat is applied while the upper is kept cool by means of wet clothes After the process sublimate can be collected from the upper vessel

Example Karpoora

j. Desiecation

It is a process by which a solid is heated so as to eliminate the moisture from it This is effected by heating it on fire or exposing the substonace to sunlight or warm weather

Example Tankana

k. Calcination

It is a process by which drugs are exposed to high temperature in order that the watery volatile constituents are driven off The substances are not heated to their fusing point The operation is some times known as roasting

Example Suvarnam

Indological Truths

l. Despumation

It is a process by which an organic fluid is boiled untile the impurities to the surface, which is then removed by skimming or straining. Syrups made by this process keep longer

Example Sugar

m. Boiling

The drug to be purified is made into a pottali and will be hanged from a rod kept at the mouth of the vessel The pottali will be in a position just above the liquid level Then the liquid is boiled for the prescribed time By this process, physical, chemical and natural impurities can be removed This process is described in the sodhana of various drugs

Example : Guggulu

n. Dipping

In this the substance to be purified is heated to red hot and dipped in liquids Due to this process, physical and chemical impurities can be removed.

Example : Abraka, Loha etc

Indological Truths

IV. According to the nature of the drug to be purified

1. **Organic**

For organic substances, the sodhana is some what easy. Processes like swedana, pachana, bhavana etc. are enough for the purification of organic drugs.

2. **Inorganic**

For inorganic substances like metals and minerals some more complicated purification methods are necessary. Process like nirvapa, putapaka etc. are needed for some inorganic substances.

Indological Truths

PHARMACOLOGY

Pharmacology consists of the detailed study of drugs, particularly their actions on living animals organs or tissues

The actions may be beneficial or harmful
Some of the allied fields are

a) Pharmacokinetics

It is the study of the movement of the drug within the body encompassing absorption, distribution and elimination ,that is what the body does with the drug

b) Pharmaco dynamics

It is the study of the pharmacological response of a drug, that is what a drug does with the body

c) Therapeutics

It is a branch of medicine concerned with case of disease or relief of symptoms and includes drug treatment

Indological Truths

d) Toxicology

It is the science of poisons Poisons are substances that cause harmful, dangerous or fatal symptoms in animals and human beings Many drugs in larger doses act as poisons Some poisons after proper processing act as very good medicines

Pharmacokinetics of a drug

After the consumption of drug, digestion and absorption takes place Absorption is the process by which a drug moves into the body from its site of measurement

After absorption, distribution will takes place which is the reversible transfer of a drug from the site of measurement usually blood or plasma

At last elimination will takes place It is the irreversible transfer of a drug from the site of measurement including metabolism, renal excreation, biliary excreation, excreation through lungs, sweat, breast milk etc

A drug will follow these pathways within the body During this way it should not cause any damage to any of the tissues of the body

Indological Truths

All drugs have to cross cell membranes to be absorbed, distributed or eliminated. There are three main mechanisms by which a drug can cross a cell membrane.

1. Passive diffusion
2. Facilitated diffusion (carrier mediated)
3. Acitve transport (Carrier mediated)

The carrier mediated transport mechanisms lend to be for those compounds which closely resemble natural substances. Most general method is passive diffusion. The cell membrane is a bimolecular lipid layer associated with protein. With hydrophobic ends of the lipid pointing inwards. Any substance which is to cross the membrane must first dissolve in the lipid layer. There are small pores also within the membrane (aquous pores) through which some low molecular weight water soluble compounds can diffuse. The numbers of these pores depend upon the type of tissues.

Indological Truths

Transportation of a drug across cell membrane

A good indicator of how a drug will transport in vivo is to look at its partition between an organic solvent and an aquous medium Most drugs are organic molecules with one or more substituents which confer on them acidic basic or amphoferic properties Drugs with acidic or basic properties can exist in conised or unconised forms The conised form possess an elctrostatic charge and prefers to dissolve in water rather than in lipids that hydrophilic The unconised form has no charge and prefers to dissolve in lipid Thus only unconised form can cross cell membrane by first dissolving in lipid

The degree of conisation is important since it can dictate the amount of unconised lipid soluble drug available for transport across the lipid membrane If we have a weak base and put it in a basic environment the conisation will be suppressed Similarly the conisation of a weak acid will be suppressed in an acidic environment

Indological Truths

a. Absorption

Absorption can be defined as the net transfer of a drug from its site of administration to the site of measurement The drugs are intended to work systematically but are administered extrasvascularly The drug must be transported from the site where it has been administered including buccal cavity, skin, nose, rectum, vagina etc The most convenient and most popular route is oral route

The drug must dissolve in the lipid memberane, first which usually means it has to be in an unconised lipid soluble form The pH of the different regions of gastrointestinal tract is an important determinant in the absorption of drugs

Investigation into the efficiency of absorption from various dosage forms are generally classed as bioavailability studies Bioavailablity studies can be defined as the rate and extend to which the intact drug or the active constituent reaches the systemic circulation

b. Distribution

Generally only a very small portion of the dose will be distributed to the receptor site, whilst more of the drug is localized in tissues other than these involved in the disease process

Indological Truths

Factors influencing drug distribution

a. P^{H}

Drugs tends to be acids or bases which can exist in conised or unconised forms The extent of conisation and the proportion of the unconised lipid soluble form will dictate how the drug will distribute pH in the body vary enough at different sites to influence distribution Plasma is slightly more basic than tissues so that for basic drugs conisation is supressed more Thus more unconised drug is available to more from plasma to tissues where it then becomes conised and cannot get back Thus basic compounds tend to distribute out of plasma into tissues more than acidic drugs

b. Binding to macro molecules

A major factor in drug distrubution is the ratio of plasma binding to tissue binding Acidic drugs binds to albumin which is found both in plasma and tissiues Basic drugs binds to acid glycoprotein and lipoprotein

c.Volume of distribution

It is a term that relates the amount of drug within the body at one time to its concentration in plasma It is the ratio of concentration of drug in plasma to the total amount in the body

Indological Truths

Elimination

Elimination is defined as the irreversible transfer of a drug from the site of measurement and includes metabolism, renal excreation, biliary excreation, excreation through sweat, breast milk etc

Metabolism

When a drug is changed chemically by metabolism, the original drug substance is no longer present and has therefore be eliminated The extend of drug metabolism depends on

1 Water solubility of drug
2 Availability of sites for metabolism

Renal excreation

All low molecular weight compounds which are not bound to high molecular weight proteins are filtrated in the glomerulus Glomerular filtration always occurs in the healthy kidney, but some compounds are also actively secreated from plasma into tubular lumen, mainly among proximal tubule Acitve tubular secretion unlike glomerular filtration is not dependent on plasma protein binding, since the drug tends to be stripped from the protein molecule with former process

Indological Truths

Reabsorption takes place for most drugs by passive diffussion throughout the length of the nephron of the kidney The ability of a drug to be reabsorbed will depend on its ability to cross lipid membrane

Biliary excreation

Drugs which are biliary excreated are secreted into bile against a concentration gradient, requiring an active process for which there is competition. Bilary excreation is less for all compounds with high molecular weights

Excreation through lungs

Some substances are partially excreated by lungs like alcohol. The presence can be recognised by the odour they impart to breath.

Excreation through skin

Metalloids like arsenic and heavy metals like mercury are excreated in small quantities through skin

Indological Truths

Excreation through breast milk

Nearly all agents received by the mother are likely to be found in her milk and could theoritically harm the infant However the data available on excreation of drugs in milk and its possible harmful effect in the newborn are scanty

Pharmacological aspects in brief about metals

The organic and inorganic salts of heavy metals possess astringent corrosive and caustic properties on local application They also act as general protoplasmic poisons and impair the cell function The heavy metal slats in very small quantities are lethal to several gram positive and Gram -ve organisms and this effect is referred to as oligo dynamic action

All the heavy metals are cumulative and potentially toxic They cause damage to various organs like liver kidney and gut Tissues like bone marrow, gastro intestinal muscosa and delicate cells such as neurones and renal tubular cells are also affected

The toxicity of heavy metals is attributed to their ability to form complexes with important, biological radicals like sulfhydryl, hydroxyl, amino and carboxyl. Affinity for sulfhydroxyl group leads to inhibition of vital enzymes Inhibition of various enzymes leads to the toxic effects

Indological Truths

Some organic compounds have high affinity for metallic ions Such drugs would combine with the metallic ions to produce relatively non toxic and easily water soluble complexes which are subsequently eliminated by kidneys The process by which these organic compounds combine with the metals to form relatively stable non ionised ring complexes is called chelabon and the compounds being designated as chelabing agents

Indological Truths

AIM OF SODHANA

1 One of the aim of Sodhana is to make the materials in such a condition that it can be calcified easily Hardness may differ to one another according to its molecular structure and composition Hardness can be reduced or drug can be softened by doing sodhana process For example by swedana process, the hardness of guggulu can be reduced In swedana impurities will dissolve in the liquid or will be removed by vapoures

2 To make the particles brittle by which separation can be done Most of the ores are in the form of mixture of many materials By doing the heating up to red hot and dipping in the dravadravya, some of the impurities will dissolve in the liquid More over the metal and mineral will become brittle, and the calcification will become easy

3 The sodhana process makes the drug biologically acceptable During its way in the body, a drug should not cause any damage to any of the tissues of the body The substances which are originally injurious to body, can be made as very good medicines, by processing them in the appropriate way

For a drug to be become biologically acceptable, it should be properly digested, properly absorbed, properly distributed and properly eliminated

Indological Truths

Effect of sodhana process on absorption of a drug

In the case of metals and minerals, direct absorption from gut wall is not possible. During the sodhana process, we are processing the metals or minerals with biological substances. These biological substance will combine with the metals to form relatively stable non ionised ring complexes called chelates. Thus absorption will be possible by carrier mediated mechanism, becuase absorption of the compounds which closely resembles natural substances is by carrier mediated transport.

Here Bhavana process is more important becuase we are using biological liquids for trituration. By doing bhavana process, along with particle size reduction, introduction of new properties to the drug can be achieved. Other advantages of bhavana process are (1) it will modify the chemical actions taking place during the marana process (2) If will increase the therapeutic value of the original drug.

Thus by doing bhavana chelate formation will takes place which will enhance the abosorption of the drug.

Indological Truths

Effect of sodhana on the distribution of a drug in the body

One of the requirement for drug action is its delivery to the site of action Certain drugs are known to act on certain tissues of the body In other words a particular drug may show affinity for a particular tissue This has to be differentiated from the place where drug may accumulate For example digitalis acts on heart though it may accumulate in muscle Piper longum has affinity for liver Acacia catechu has affinity for skin and these plants are incorpoarated in formulations intended for activity on that particular organ Thus the concept of affinity and carrying capasity are important in Ayurveda

The concept of targetting drugs to their site of action was introduced by Paul Ehlerich with the term 'magic bullet' It is dealing with the site specific delivery of the drug Various drug delivery systems like liposomes, ghost erythrocytes etc are developed by modern pharmacologists But they are highly complex, expensive and often loxic in human beings

Indological Truths

Various sodhana processes are described in various books. In the indication of the sodhana, medicine can be changed by changing the drugs used for the sodhana process The reason for the difference in indication is that the product have a property of drug used for the sodhana process. These drugs are targetted to specific tissues which are abnormal. Thus same drug, processed with different drugs can cure different disease.

Same is the case of Anupana The anupana dravyas have a tendency to act on certain tissues to which they are targettted. Along with this anupana dravya, the actual drug will also act on the site where the anupana dravyas are acting

Indological Truths

Effect of sodhana on the elimination of a drug from the body

Finally the drugs which are absorbed from the system should be eliminated Otherwise they will accumulate in the body and will cause toxic reactions

By doing the sodhana process chelate formation will takes place So deposition of metals or minerals will not occur The complex compounds will mimic the biological compounds and will be eliminated If these metals or minerals are used without proper sodhana process in small quantity , they will accumulate in various tissues of the body and will cause slow poisoning or chronic poisoning So before administration, proper purification should be done to avoid toxic manifestations Elimination will be effected only if it is either metabolised, or excreted through lungs, sweat, kidney, bile, breast milk etc

Sodhana enhances the therapeutic action of a drug For example, during bhavana process, facilitation of pharmacological response by concomitant use of two or more drugs is taking place It is called synergism

Indological Truths

Some sodhana process are especially meant for modifying the property of the drug For eg Croton tiglium is a potent purgative Ayurvedic pharmaceutic technique combines it with milk and reduceds its irritant properity That is why Ayurveda propounds that with proper manipulation even a poisonous substances can be medicinally used Stability can also be increased by sodhana process

Indological Truths

VARIOUS SODHANA PROCESSES DESCRIBED IN RASASASTHRA FOR VARIOUS DRUGS

Parada or Mercury

Parada can be purified by Pathana process ie by sublimation or distillation In some texts filtration through double or four fold cloth for several times (seven to twenty one times) are recommended

Mercury to be rubbed with equal parts of lime powder for three days and filtered through cloth The filtrate (Hg) is now mixed with equal part of lasuna and ground till the paste becomes black After that it should be washed with hot water and the purified mercury is collected

In some texts hingulothaparada is recommended for medicinal preparations instead of makaing general purification

Some scholars have the view that ashtadasa samskaras are necessary for parada for using medicinal preparations Then the efficacy of medicine will be increased

Indological Truths

Maharasa group

a. Abhrakam – Mica

Method of purification

Drugs used for purification - Kanchika, gomutra thriphalakwatha, godugdha, kulatha kwatha, thakra chincha rasa, jambirarasa,etc

Process and apparatus

Heating and dipping seven times

Bhavana (trituration) for eight yamas

Swedana (fomentation under water bath) for three days in dolayanthra

b. Vaikrantha (Tourmaline)

Drugs used for sodhana Kulathakwatha, Hayamuthra. Kodrava kwatha, Gomoothra, kanji, thilathaila etc

Process and apparatus

Swedana in dolayanthra one to seven times

Pachana after sealing it in vyaghrikanda

Indological Truths

c. Makshika (Chalcopyrite)

Sodhana drugs

Varakwatha, Erandathaila, gomoothra, thakra, amladrava, jambirarasa, aranala etc

Process and apparactus

Nikshepa after heating
Swedana in dolayanthra for one yama.
Putapaka after sealing in the Kalka or Kanda for three times till it becomes red

d. Vimala (Pyrite)

Sodhana drugs

Vasajala, Jambirarasa, Thaila, aranala, thakra, gomoothra, Kulathakwatha, Kodravakwatha.

Process and apparatus

Swedana in dolayanthra for one day
Mardana for one yama
Dravapachana one time
Sweda in Sooranakanda or punarvakalka

Indological Truths

e. Silajathu (Asphaltum Panjabinum)

Gomoothra silajathu

Sodhana drugs

Ksharadrava, amala drava, with guggulu gomoothra mixed with kshara, amla, godugdha, thriphalakwatha, bringarajarasa, ardrakadrava, goghritha.

Process and apparatus

Pachana in lohapathra

Suryathapa sthapana in a lohapathra

Here Santhambh (covering layer) which is being accumulated on the surface is only collected and the residue is left in the vessesls to allow more santhampha to accumulate This process shhould be continued till the formation of Santhamba continues.

Karpoora silajathu

Sodhana drug

Elakwatha

Process

Grinding with elakwatha for sometime and then filtering

Atapa Samsoshana

Indological Truths

f. Sasyaka (Blue vitriol)

Sodhana drugs

Raktha vargadravyarasa or kwatha, ajamoothra, mahishimoothra, gomoothra, mahisha ghritha etc

Process and apparactus

Swedana in dolayanthra for two yama
Bhavana with rakthavarga dravyarasa
Putapaka in laghuputa for three times

g. Chapala (Bismuth ore)

Sodhana drugs

Jambeerarasa, Karkotarasa, Sringiverarasa

Process and apparatus

1 Bhavana
2 Swedana for seven times
3 Plavana or dipping

Indological Truths

h. Rasaka or Kharpara (Zinc ore (ZnO, ZnS)

Sodhana drugs

Bijapurarasa, Naramoothra, Thakra, Kanjika, Saindhava, Gomoothra, etc.

Process and apparatus

Heating and dipping in liquids for seven days

Dravana (melting) and dhalana (Pouring) into drava three times

Bhavana for one day

Swedana in dolayanthra.

Uparasa Group

a. Gandhaka (Sulphur)

Sodhana drugs

Gosheera, srngiverarasa, bhringarajarasa, nimburasa, ajadugdha, Karanjuthaila, eranda thaila, goghritha, etc

Process and duration

Swedana for one yama

Dravana (melting) Galana (filtering) and Dravanikshepana (pouring into liquid)

Bhavana for two to twenty one times.

Kurmaputapaka

Indological Truths

b. Gairika (red ochre)

Sodhana drugs

godugdha, rakthavargarasa or kwatha, amla drava

Process and apparatus

Bhavana for seven times

Ghritha bharjana for one yama

Swedanam in dolayanthra for one yama

c. Kasisa (Ferric or ferrous Sulphate)

Sodhana drugs

Bhringambu, Kasamardarasa, Kanji, Nimbu rasa etc

Process and apparatus

Swedana in dolayanthra for one yama

Bhavana (One to three yama)

d. Kamkshi (Alum)

Sodhana drugs

Kanjika, Dhanyamla, Chitraka kwatha

Process

Swedana for one to three days

Stapana (Putting into Kanjika) for three days

Indological Truths

e. **Thalaka (Orpiment)**

Sodhana drugs

Kusmandatoya, Choornodaka, Snuhidugdha

Thilathaila, Ksharajala, Salmali Kashaya

Process and apparatus

Swedana in dolayanthra for one yama to three days

Bhavana for seven to hundred times

Kshalana (Washing)

f. **Manasila (Realgar)**

Sodhana drugs

Agasthyapathra swarasa, sringiverarasa, gomoothra, ajamoothra, jayanthipathrarasa, aranala, ardrarasa etc

Process and apparatus

Bhavana for seven times

Swedana in Dholayanthra for one yama to one day

Pachana in liquids

Peshana with liquids

Indological Truths

g . **Anjana (Antimony and lead compounds)**

Sodhana drugs:-

Bhringarajarasa, Gosakritrasa, Gomoothra, Thriphala kwadha

Process and time limit

Bhavana (One to three times)

Swedana for one yama

Vastra sravana (filration through cloth)

Suryathapa soshana (drying on sun rays)

h. Kankushta (Rubharb)

Sodhana drugs

Suntyambu, Jamburasa, Suryavanthadi drava

Process and time limit

Bhavana for three times

Swedana for three yama

Sadharanarasa group

a. Kambillaka (Mallotus Philippinensis)

Sodhana Process

Mix the Kampillaka in pure water The impurities like sand etc will settle in the bottom Kampillaka will

Indological Truths

float in the surface It can be collected and dried and can be used for medicinal purpose

b. Gouripashana (White arsenic)

Sodhana drugs

Karavalliphalarasa, Kumarirasa, Kantakari rasa, Balathrayarasa. Palasarasa, Kadalirasa etc

Sodhana process

Swedana in dolayanthra a for one yama to six yama

Pachana for two yama

Mardana for three days

c. Navasara (Ammonium Salts)

Sodhana

Mix it with hot water and filter it with thick cloth and collect in a big vessel for drying After drying it should be collected in white chrystalline or powder form

It may be purified by sublimation method in damaru yanthra. Through this process light yellow coloured powder may be obtained

Indological Truths

d. Kaparda (Cowry)

Sodhana drugs

Kanji, aranala, nimburasa, thakra, amlavarga

Process and apparatus

Swedana in dolayanthra for one yama

Bhavana for one yama

e. Agnijara (Amber)

As it is obtained from sea water which is saltish and alkaline hence becomes purified automatically and needs no purifications

f. Girisindoora (Red Oxide of mercury)

Sodhana is done by impregnated with the juice of matulunga

g. Hingula (Cinnabar)

Sodhana drugs

Ardrakaswarasa, lakuchambu, Kushmanda khanda, Amlavargadraya, gomoothra etc

Indological Truths

Process and apparatus

Swedana for yama one time

Kushmanda madhya stapana

Bhavana for seven times and drying in sun rays

Agnipachana for three days

h. Mridharasringa (Litharge)

According to Rasatharangini, Mridharasringa should be made into pieces to remove stones from it then it should be powdered and strained through a cloth and pasted with clear water for fifteen days and then after drying it may be used This may be used for external application

It may also be purified with the common method recommended for all sadharana rasas

Samanya Sodhana of Sadhararnarasas

Bhavana of Sadharana rasas with matulunga and ardrakajala for three times and drying

Indological Truths

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Indological Truths

Metals

Samanya sodhana of metals

According to Rasendrachinthamani and Rasa rathnakara fine sheets of all the metals are purified by dipping them in the following liquids for seven times after heating until they become red hot The liquids are thaila, thakra, gomoothra. aranala, kulathakwadha

All the lohas are to be heated with amla and ksharadrava for their general purification Heating the metals upto red hot and dipping in kadalimoolajala Metals to be triturated first with jambeera rasa and then boiled with karkadasringi juice or decoction

Kalka of halini, kanchuki kanda and chithrakamoola is to be prepared with snuhiksheera and arkashkeera and mixed with mahishathakra for seven nights All the lohas to be dipped in same thakra after heating them to red hot for their general purification

Indological Truths

Visesha sodhana of metals

a. Suvarnam (Gold)

Sodhana drugs

Lavana Choorna, Panchamrithika, khalika, Kanji, Jambeerarasa

Sodhana Process

Make the paste of khalika and lavana with kanji or prepare a paste of panchamrithika with kanji or janbeerarasa and apply it to suvarnapathra

Putapaka in laghuputa with vanyopala three times

b. Rajatha (Silver)

For removing impurities obtained from mines (eg metallic impurities) it should be heated with lead, six parts in a crucible Heating should be slow and careful Impurities of silver will mix with lead and silver will become pure Tankana may also be added to reduce the melting point

Indological Truths

Sodhana drugs

Kshara, Amla drugs, Thaila, Thakra, Gomoothra, Kanji, Kulathakwadha, Agasthyapathrarasa

Process and apparatus

Pachana (heating)

Heating and dipping in various liquids

c. Tamra (Copper)

Sodhana Process

A paste of snuhiksheera, arkasheera and lavana may be applied over the copper leaves, then heated to red hot and may be dipped in nirgundi juice three times Besides nirgunadi juice, snuhiksheera and arkaksheera may also be used for dipping

d. Naga (Lead)

Sodhana drugs

Nirgundirasa, Nirgundi rasa with Haridra choorna, Arkadugdha, Thriphalakwatha Bringarajarasa, gomoothra, goghritha etc

Process and apparatus

Melting and pouring it into liquids through a pot having a hole in the centre placed over the liquid pot Process should be repeated three times or seven times

Indological Truths

e. Vanga (Tin)

Sodhana drugs

Churnodaka, nisa, nirgundidrava, kanji, arkadugdha, amlathakra and katphalakwatha with punarnava

Process and apparatus

Swedana in dolayanthra for half yama

Agnidravanam and dravadhalanam It should be poured slowly and with care The process should be repeated three or seven times

f. Yasada (Zinc)

Sodhana drugs

Godugdha, Churnodaka, Nirgundi drava

Process and apparatus

Melting and pouring into liquids for seven to twenty one times

g. Loha (Iron)

Sodhana process

Before subjecting to sodhana process, it should be converted into very thin sheets or into fine powder

Indological Truths

Sodhana drugs

Thriphala kwadha in eigth parts of water reduced to ¼ th gomoothra nirmitha thriphala kwatha Chinchapatraswarasa, Kadalimoolajala, Ksheera, Thaila, Ajya Gomoothra etc

Sodhana Process

Heating to red hot and dipping in the thriphala kwatha or other liquids seven times

Sodhana of misralohas

a. Pithala (Brass)

Sodhana drugs - Trivrit with nirgundiswarasa amla drava

Sodhana Process

Pithala sheets should be dipped into nirgundirasa mixed with thrivrith five times after strong heating

Pithala should be boiled with any amladrava for one yama

b. Kamsya (Bronze)

Aswamoothra

Sodhana process

Heating and dipping for seven times

Indological Truths

c. Varthaloha (Bell metal)

Sodhana Process -

It should be dipped either in ajamoothra or aswamoothra for seven after times strong heating

Sodhana of mandoora (Iron oxide)

Sodhana drugs

Thriphalakwatha prepared in gomoothra

Process

Heat the mandoora into red hot in akshangara. dip into the thriphalakwatha prepared in gomoothra for seven times

It is heated and dipped in gomoothra for seven times. After that it should be dipped in double the quantity of the thriphalakwatha after powdering till it evaporates.

Sodhana of Ratnas

Method of general purification

Sodhana drugs:-

Jayanthi swarasa, Kumariswarasa, Thanduliya swarasa, Naristanya, Amladrava, Ksharadrava and gomoothra

Indological Truths

Process and apparatus

Swedana in dolayanthra for one yama

Heating and dipping for seven times

Visesha sodhana or specific methods of purification

a. Manikya (Ruby)

Sodhana drugs

Nimburasa or any amladrava

Process

Swedana in dolayanthra for one yama

b. Mukthaphala (Pearl)

Sodhana drugs:-

Jayanthipathraswarasa agasthyapathraswaras, nimbuswarasa, ushnodaka

Process and apparatus

Swedana in dolayanthra and prakshalana

c. Pravala (Coral)

Sodhana drugs :-

Ksharadrava, Jayanthi pathraswarasa, Thandulıyarasa, etc

Process and apparatus

Swedana in dolayanathra for one yama

Indological Truths

d. Marakatha (Emarald)

Sodhana drug: - Godugdha

Sodhana Process: - Swedana in dolayanthra for one yama

e. Pushparagam (Topaz)

Sodhana drugs: - Dhanyamla (Kanjika)

Process - Swedana in dolayanthra for one yama

f. Vajra (Diamond)

Sodhana drugs

Tanduliyadrava, Kulatha or kodrava kwatha,

Vyaghrikanda

Process and apparatus

Swedana in dolayanthra for one yama to seven days

Putapaka for twenty four hours

g. Neelam (Sapphire)

Sodhana drugs - Neeli Swarasa

Process and apparatus

Swedana in dolayanthra for one yama

h. Gomeda (Hessonite)

Sodhana drug - Gorochana drava, nimburasa

Sodhana process

Swedana for one yama in dolayanthra.

Indological Truths

i. **Vaidooryam (Cat's eye)**

Sodhana drug - Thriphala Kwatha

Process and apparatus - Swedana in dolayanthra for one yama

Sodhana of Uparatnas

a Vaikrantha (Tourmaline)- Sodhana given along With Maharasa group of drugs

b Sooryakanta (Sunstone)

c Chandrakantha (Moonstone) Sodhana not given

d Nripojam (Lapis lazuli)

Sodhana drugs

Gomoothra with kshara, nimbu, swarasa, kharadrava, amladrava, sirishapushpaswarasa, mahishiksheera with Goghritha etc

Process and apparatus

Swedana in dolayanthra for one yama

Pachana in lohapathra

Bhavana for two to three times

Indological Truths

e Perojaka (Turquoise)

f Sphatika (Quartz)

g Akika (Agate)

h Thrinakantha (Amber)

Sodhana not given for these drugs

Sodhana of Sudhavarga

a) Sankha (Conch shell)

Sodhana drugs - Amlakanjika, amlathkra, amlavargadrava

Process and apparatus

Swedana in dolayanthra for one yama

b. Sambooka (Shell)

Sodhana drug - Amla drava

Process and apparatus - Swedana in dolayanthra for one and a half hours

c. Sukthi (Pearl Oyster)

Sodhana drug: - amladrava

Process and apparatus: - Swedana in dolaynathra

Indological Truths

d. Godanthi (Gypsum)

Sodhana - Swedana in nimbu or dronapushpirasa for half yama

e. Khadika (Chalk)

Sodhana :- Powdered chalk is mixed with water and filtered through cloth It is then allowed to stand for 2-3 hours The clear water from upside should be removed and the settled pure material should be collected

Sodhana of Visha drugs

1 Sringikam
2 Kalakootam
3 Sakthukam
4 Valsanabha
5 Musthaka

General method of purification

In Rasendrachoodamani it is described that the vishas should be cut into small pieces and dipped in a vessel filled with gomoothra for three days , changing the gomoothra daily Collect them on the fourth day Wash them with water and dry in sunrays

Specific Method of purification

From the Visha group, only valsanabha is in use

Indological Truths

Sodhana of Vatsanabha

Sodhana Drugs:-

Jala and Kshira in equal amounts Thriphala kwatha, Gomoothra

Process and apparatus

Swedana in dolayanthra for three hours

Gomoothra madhyastapana for three days and atapa soshana

Sodhana of Upavisha group of drugs

a) **Arkaksheera** (Latex of Calotropis procera)

Sodhana not needed

b) **Snuhi ksheera**

Sodhana drug · Chinchadala drava

Sodhana process -

Mix snuhi dugdha with Chincha daladrava and dry it in sun rays

c. **Langali** (Gloriosa Superba)

Langali should be kept in gomoothra for one day for sodhana

d. **Karaveera (Nerium indicum)**

Sodhana

Swedana in dolayanthra with dogugdha

e. **Gunja** (Abrus Precatorius)

Sodhana drugs - Kanjika, godugdha

Process Swedana in dolayanthra upto two yama.

Indological Truths

f. Ahiphena (Opium)

Ahiphena should be dissolved in clear water and filtered with cloth Then it should be mixed with cow's milk and heated on low heat at low temperature It should be colleted at a semisolid consistancy

Sodhana drugs – Sringiverarasa

Sodhana Process - Twenty times bhavana with Sringivera juice

g. Dhathura (Datura Stramomium)

Sodhana drugs - Godugdha, Gomoothra

Sodhana Process: -

Swedana in dolayanthra for one yama and wash them with hot water

Gomoothra madhyastapana and pachama for four yamas and remove the external covering

h. Jayapala (Croton tiglium)

Sodhana drugs

Godugdha and gomayathoya

Sodhana Process:

Remove the upper covering first, cut if into two pieces from the middle and remove the green covering Tie it in cloth and apply swedana in dolayanthra for one yama Repeat the process for three times

Indological Truths

According to rasatharangini in addition to above porcess its paste must be applied over a new earthern pot so as to lesser its oily content After collecting it from the earthern pot it must be kept in boltting papers Thus it becomes purified

Swedana in dolayanthra and light frying

i. Bhanga (Cannabis indica)

Sodhana drugs: -Water, Goghritha, godugdha, babbula thwak kashya

Sodhana Process

Bhavana with godugdha

Swedana with babbulakashya

Salila nimajjana, athapa soshana and ghritha bharjana

j. Vishamustibeeja (Strychnos nuxvomica)

Sodhana drugs - Kanjika, Ajya, godugdha

Sodhana Process

Swedana in dolayanthra one yama to three days

Frying in Ghee

k. Bhallathaka (Semicarpus anacardium)

Sodhana proces :-

It should be rubbed with ishtika choorna in a pottali till its external covering and oily contents are removed Then wash it with hot water

Swedana in dolayanthra for one yama with coconut water

Indological Truths

Sodhana of some other drugs used in Ayurveda

a. Athivisha (Aconitum heterophyllum)

Sodhana -

Swedana in dolayanthra with gomayarasa and then drying

b. Eranda (Ricinus Communis)

Sodhana

Dip the seeds in milk or wash with milk and then dry the seeds

c. Kramuka (Areca Catechu)

Sodhana

Boil in water after removing the peel Then dry in sunlight

d. Sooranam (Amorphophallus sylvaticus)

Sodhana

Boil it in chinchapathrarasa or thakra and dry it in sunlight

Putapaka and drying in sunlight

e. Hingu (Ferula asafoetida)

Sodhana

Fry the hingu in ghee upto slight reddish colour

Bhavana in Padmapathraswarara for ardha yama and drying in sun light

Indological Truths

f. Chithakam (Plumbargo rosea)

Sodhana

Dip it in lime water till it becomes red and then wash it

Boil it in gomayarasa

Keeping in gomayarasa for 24 hours

g. Guggulu (Commifora mukul)

Sodhana

Swedana in Dolayanthra with thriphalakwatha

Swedana in Dolayanthra with dodugha

Swedana in dolayanthra with the kwatha of nimbapatra and nisa and frying in ghee and grinding

h. Nagadanthi (Baliospermum montamum)

Sodhana:

Putapaka and drying in shade

i. Thamalam (Garcinia morella)

Sodhana :

Bhavana in Suntikwatha for three times Kwatha should be changed in each time

j. Thuvarakam (Hydrocarpus laurifolia)

Collect the seeds from the ripened fruit and prepare the oil by boiling in water

It should be again boiled to remove the water content

Then keep in an air tight vessel

Indological Truths

k. Katuki (Picrorhiza curora)

Sodhama:

Wash it in hot milk

l. Madhusnuhi (Smilax china)

Boil in milk dry and power

Indological Truths

CONCLUSION

Sodhana is very important for the preparation of medicines because without proper sodhana drugs may exibit toxic reactions and also they will not perform the proper therapeutic effect Various methods are described in Ayurvedic texts for the sodhana of various drugs By doing sodhana the material becomes brittle and the further processing will be biologically acceptable. Sodhana drug will not do any damage to the body during its digestion, absorption, distribution or elimination Sodhana process will modify the drug action and will enhance the efficiency of the drug Sodhana will increase the stability or shelf life of the drug

DISCUSSION

Different methods are described for a single drug for sodhana process The changes taking place during each process should be analysed Pharmacokinetics of the same drugs with different process should be studied and the reason of difference in aciton should be discovered For modifying the sodhana process according to the modern needs the actual changes taking place during sodhana process should be studied thoroughly so that without losing efficiency newer methods can be employed for the Sodhana purpose

Indological Truths

REFERENCE

१. स्थावरं जंगमं चेति विषं प्रोक्तमकृत्रिमम्।
कृत्रिमं गरसंज्ञं तु क्रियते विविधौषधै:।।

(अ-ह-उ-35-5)

२. युक्तियुक्तं विषं ज्ञेयं प्राणदायि रसायनम्।
योगवाहि त्रिदोषघ्नं बृहणं वीर्यवर्धनम्।।

(आ-प्र-8-272)

निषेव्यमाणो तिलश: विषमप्यमृतायते।।

३. a. विष्णाति इति विष:।
b. विष्लु व्याप्ते। (शब्दकल्पद्रुमम्)

४. विषं प्राणहरं प्रोक्तं व्यवायि च विकासि च।
वातश्लेष्महदाग्नेयं योगवाहि मदावहम्।।
तदेव युक्तियुक्तं तु प्राणदायि रसायनम्।।
पश्याशिनां त्रिदोषघ्नं बृह्मणं वीर्यवर्धनम्।।

(आ-प्र-8-45, 46)

५. दोषप्रमाणानुरुपो हि भेषजप्रमाण विपत्ता बल
प्रमाण विरोधापेक्षो भवति।

(च-वि-1-9)

Indological Truths

६. विषे तेजोमये मन्त्रैः सत्यब्रह्म तपोमयैः।

(अ-सं-40-111)

७. उपयोग विशेषैरमृततां विनयमानो
ब्रह्मानुनिचौषधिषु न्यस्तवान्।

(अ-सं-40-3)

८. न च कन्यामविदितां संस्पृशेदपरीक्षितम्।
विविधान् कुर्वते योगात् कुशलः खलु मानवाः।।
आजन्म विषसंयोगात् कन्या विषमयी कृता।
संस्पृशेच्छ्वासादिभिर्हन्ति तस्यास्त्वेतत्परीक्षणम्।।
तद्धस्तकेश संस्पर्शान्म्लायते पुष्प पल्लवैः।
शय्यायां मक्कुणैर्वस्त्रे यूकाभिः स्नान वारिणि।।
जन्तुभिर्म्रियते ज्ञात्वा तामेव दूरतस्त्यजेत्।

(अ-सं-सू-8)

९. राजा राजगृहासन्ने प्राणाचार्यं निवेशयेत्।
सर्वदा स भवत्येवं सर्वत्र प्रतिजागृविः।।

(अ-ह-सू-7-1)

१०. मूलं पत्रं फलं पुष्पं त्वक् क्षीरं पुष्पे त्वक् सार एव च।
निर्यासो धातवश्चैव कन्दश्च दशमःस्मृतः।।

(सु-क-2-4)

११. तत्र क्लीतकाश्वमार गुञ्जा सुगन्ध गर्गरक करघाट
विद्युच्छिखा विजयानीत्यष्टौ मूलविषाणि।

(सु-क-2-5)

Indological Truths

१२. विष पत्रिकालम्बावरदारु करम्भ महाकरम्भाणि
पञ्चपत्रविषाणि

(सु-क-2-5)

१३. पत्रविषं कालपत्रिका लम्बा वरदकरम्भार्कादीनाम्।

(अ-सं-40-7)

१४. कुमुद्वती वेणुका करम्भमहाकपम्भ
कर्कोटकरेणुक खद्योतक चर्मरीभगन्धा सर्पघाति
नन्दनसारपाकानीति द्वादश फल विषाणि।

(सु-क-2-5)

१५. फलं कुमुद्वती रेणुकाकरम्भ महाकरम्भ
मदनकतुवरकादीनाम्।

(अ-सं-उ-40-7)

१६. वेत्र कादम्ब वल्लीज करम्भ महाकरम्भाणि
पञ्च पुष्प विषाणि।

(सु-क-2-5)

१७. पुष्पविषं वल्लीरेणुक करम्भ महाकरम्भादीनाम्।

(अ-सं-उ-40-7)

१८. अन्त्रपाचक कर्तरीय सौरीयक करघाटक
रम्भनन्दन नाराचकानि सप्तत्वक्सार विर्यास विषाणि।

(सु-क-2-5)

Indological Truths

१९. त्वक्सार निर्यासाः करक करघाटक करकम्भ
महाकरम्भनाराचकादीनाम्।

(अ-सं-उ-40-7)

२०. कुमुदध्नी स्नुही जालक्षीरीणि त्रीणि क्षीरविषाणि।

(सु-क-2-5)

२१. क्षीरं कुमुद्वती दन्ती स्नुह्यर्क जालिनी व्यालादीनाम्।

(अ-सं-उ-40-7)

२२. फेनाश्म हरितालं च द्वे धातु विषे।

(सु-क-2-5)

२३. धातवो हरिताल फेनाश्मभस्म रत्नूप्रभृतयः।

(अ-सं-उ-40-7)

२४. कालकूट वत्सनाभ सर्षप पालक कर्दमक वैराटक
मुस्तक श्रृङ्गी विष प्रपुण्डरीक मूलकहालाहल
महाविषकर्कटकानीति त्रयोदश कन्द विषाणि |

(सु-क-2-5)

२५. कन्दजानि तु हालहलकालकूट वत्सनाभ
श्रृङ्गी सार्षप जालक कर्दमकवैराटक मुस्तक
मुष्कक साक्तुकक्रौञ्चक वालक महिविष पुण्डरीक

Indological Truths

गालवमूलक मर्कटक र्कटक करवीरकेन्द्रायुध
सङ्कोचक लाङ्गालक तैलपेय कुशपुष्पके तु
पुष्पकरोहिषाञ्जनाभकादीनि।

(अ-सं-अ-40-7)

२६. मुस्तकं पौष्करं क्रौञ्चं वत्सनाभं बलाहम्।
कर्कटं कालकूटं च करवीरक संज्ञकम्।।
पालकेन्द्रायुधं तैल मेचकं कुशपुष्पकम्।
रोहिषं पुण्डरीकं च लाङ्गलक्यञ्जनाभकम्।।
सङ्कोचं मर्कटं श्रृङ्गीविषं हालाहलं तथा।
एषमादीनि चान्यानि मूलजानि स्थिराणि च।।

(च-चि-23-11 to 13)

२७. चत्वारि वत्सनाभानि मुस्तके द्वे प्रकीर्तिते।
षट् चैव सर्षपाण्याहुः शोषाण्येकैकमेव तु।।

(सु-क-2-6)

२८. स्थिरमत्युल्बणं वीर्ये यत्कन्देषु प्रतिष्ठितम्।
कालकूटेन्द्रवत्साख्य श्रृङ्गी हालाहलादिकम्।।

(अ-ह-अ-35-4)

२९. तीक्षणोष्ण रूक्षविशदं व्यवाय्याशुकरं लधु।
विकाषि सूक्ष्ममव्यत्क्तरसं विषमपाकि च।।

(अ-ह-उ-35-7)

Indological Truths

३०. लघु रूक्षमाशु विशदं व्यवायि तीक्ष्णं विकाषि सूक्ष्मं च।
उष्णमनिर्देश्यरसं दशगुणमुक्तं विषं तज्ज्ञैः।।

(च-चि-23-24)

३१. रूक्षमुष्णं तथा तीक्ष्णं सूक्ष्ममाशु व्यवायि च।
विकाशि विशदं चैव लघ्वपाकि च तत् स्मृतम्।।

(सु-क-2-19)

३२. तद्रौक्ष्यात् कोपयेद्वायुमौष्ण्यात् पित्तं स शोणितम्।
मतिं च मोहयत्तैक्ष्ण्यान्मर्म बन्धांश्छिनत्ति च।।
शरीरावयवान् सोक्ष्म्यात् प्रविशोद्विकरोति च।
आशुत्वादाशु तद्धन्ति व्यवायात् प्रकृतिं भजेत्।।
क्षपयेच्च विकाशित्वाद्दोषान्धातून्मालानपि।
वैशद्यादतिरिच्येत दुश्चिकित्स्यं च लाघवात्।।
दुर्हरं चाविपाकित्वान्तस्मात् क्लेशयते चिरम्।।

(सु-क-2-19-23)

३३. यथाव्यक्तरसं तोयमन्तसिक्षान्महीगतम्।
तेषु तेषु प्रदेशेषु रसं तं तं नियच्छति।।
एवमेव विषं यद्यद् द्रव्यं व्याप्यावतिष्ठते।
स्वभावादेव तं तस्य रसं समनुवर्तते।।

(सु-क-3-23,24)

३४. विषे यस्माद् गुणाः सर्वे तीक्ष्णाः प्रायेण सन्ति हि।
विषं सर्वमतो ज्ञेयं सर्वदोष प्रकोपणम्।।

(सु-क-3-25)

Indological Truths

३५. विषं हि देहं संप्राप्य प्राक् दूषयाति शोणितम्।।
कफपित्तानिलांश्चानु समदोषं सहाशयान्।
ततो हृदयमास्थाय देहोच्छेदाय कल्पते।।

(अ-ह-उ-35-10)

३६. क्षरति विषतेजसासृक् तत् खानि निरुध्य मारयति जन्तुम्।
पीतं मृतस्य हृदि तिष्ठति दष्टविद्धयोर्दंशदेशो स्यात्।।

(च-चि-23-32)

३७. ओजसो विपरीतं तत् तीक्ष्णाद्यैरन्वितं गुणैः।
वातपित्तोत्तरं नृणां सद्यो हरति जीवितम्।।

(अ-ह-उ-35-8)

३८. सर्वमपि चैतन्मौलमित्युच्यते मूलाश्रयत्वात् पत्रादीनाम्।

(अ-सं-उ-40-10)

३९. स्थावरं तु ज्वरं हिक्कां दन्तहर्षं गलग्रहम्।
फेनवम्यरुचिश्वास मूर्च्छाश्च जनयेद्विषम्।।

(च-चि-23-16)

४०. सर्वमेव स्थावरं हिध्मा दन्तहर्षं
हनुस्तम्भ गलग्रहः।

(अ-सं-उ-40-9)

४१. उद्वेष्टनं मूलविषैः प्रलापो माह एव च।

(सु-क-2-7)

Indological Truths

४२. जृम्भाङ्गोद्वेष्टन श्वासा ज्ञेयाः पत्रविषेण तु।

(सु-क-2-7)

४३. मुष्कशोफः फलविषैर्दाहोन्नद्वेष एव च।

(सु-क-2-7)

४४. भवेत् पुष्पविषैश्छर्दिराध्मानं मोह एव च।

(सु-क-2-7)

४५. त्वक्सार विर्यास विषैरुपयुक्तै भवान्ति हि।
आस्य दौर्गन्ध्य पारुष्य शिरोरुक्कफ संस्रवाः।।

(सु-क-2-9)

४६. भेनागमः क्षीरविषैर्मूर्छा दाहश्च तालुनि।

(सु-क-2-10)

४७. हृत्पीडनं धातुविषैर्मूर्च्छा दाहश्च तालुनि।

(सु-क-2-10)

४८. स्पर्शाज्ञानं कालकूटे वेपथुः स्तम्भ एव च।

(सु-क-2-11)

४९. ग्रीवास्तंभो वत्सनाभे पीतविण्मूत्र नेत्रता।

(सु-क-2-12)

५०. सर्षपे वातवैगुण्यमानाहो ग्रन्थिजन्म च।

(सु-क-2-12)

५१. ग्रीवा दौर्बल्य वाक्सङ्गौ पालकेनुमताविह।

(सु-क-2-13)

Indological Truths

५२. प्रसेकः कर्दमाख्येन विड्भेदो नेत्रपीतता।

(सु-क-2-14)

५३. वैराटकेनाङ्गदुःखं शिरोरोगश्च जायते।

(सु-क-2-14)

५४. गात्रस्तंभो वेपथुश्च जायते मुस्तकेन हि।

(सु-क-2-15)

५५. शृङ्गीविषेणाङ्ग साद दाहोदरविवृद्धयः।

(सु-क-2-15)

५६. पुण्डरीकेण स्तब्धत्वमक्ष्णोर्वृद्धिस्तथोदरे।

(सु-क-2-16)

५७. वैवर्ण्यं मूलकैश्छर्दि हिक्का शोफप्रमूढताः।

(सु-क-2-16)

५८. चिरेणोच्छसिति श्यावो नरो हालहलेन वै।

(सु-क-2-17)

५९. महाविषेण हृदये ग्रन्थिशूलोद्गमो भृशम्।

(सु-क-2-17)

६०. कर्कटेनो त्पतत्यूर्ध्वं हसन् दन्तान् दशत्यपि।

(सु-क-2-18)

६१. यथास्वं भक्षिते पीडा यथास्वं च क्रियाक्रमः।
सप्तवेगान् विषस्याहुरष्टाविति पुनर्वसुः।।
दुष्यति प्रथमे वेगे रसश्छर्दि प्रसेककृत्।

Indological Truths

द्वितीयेस्रं चिमिचिमा जृम्भावेपथुकारि तत्।।
तृतीये पिशितं कण्डूकोठ मण्डल शोफदम्।
दोषाश्चतुर्थे तेषु स्युर्यथायथमुपद्रवाः।।
पञ्चमे दर्शन भ्रान्तिः षष्ठे हिध्मासमुद्भवः।
सप्तमे स्कन्धभङ्गोस्य जायते मृत्युरष्टमे।।

(अ-सं-उ-40-28 to 31)

६२. तृण्मोह दन्तहर्ष प्रसेक वमथु क्लमा भवन्त्याद्ये।
वेगे रसप्रदोषादसृक् प्रदोषाद् द्वितीये तु।।
वैवर्ण्यं भ्रमवेपथु मूर्च्छा जृम्भाङ्ग चिमिचिमातकाः।
दुष्टपिशितात्तृतीये मण्डलकण्डू श्वयथुकोठाः।।
वातादिजाश्चतुर्थे दाह च्छर्द्यङ्ग शूल मूर्च्छाद्याः।
नीलादीनां तमसश्च दर्शनं पञ्चमे वेगे।।
षष्ठे हिक्का, भङ्गः स्कन्धस्य तु सप्तमे मरणं नृणाम्।।

(च-चि-23-18 to 20)

६३. दुष्यति प्रथमे स्तं द्वितीये श्वयथूद्भवः
तृतीयेङ्गे चिमिचिमा चतुर्थे ज्वर मूर्च्छना।।
पञ्चमे पाण्डु जिह्वास्य शोषः षष्ठे हृदि व्यथा।
सप्तमे मरणं वेग इति नग्नजितो मतम्।।

(अ-स-अ-40-32,33)

Indological Truths

६४. मूर्च्छे हृदि परं पीडा शिरोरुगपतन्त्रकः।
हिध्मा च दारुणो मर्मच्छेदो जीवित संशयः।
सप्तेति वेगा मूर्च्छाद्या विदेहपतिना स्मृताः।।

(अ-सं-उ-40-34)

६५. स्थावरस्योपयुक्तस्य वेगे तु प्रथमे नृणाम्।
श्यावा जिह्वा भवेत्स्तब्धा मूर्च्छा श्वासश्च जायते।।
द्वितीले वेपथुः सादो दाहः कण्ठ रुजस्तथा।
विषमामाशयप्राप्तं कुरुते हृदि वेदनाम्।।
तालुशोषं तृतिये तु शूलं चामाशये भृशयम्।
दुर्वर्णं हरिते शूने जायेते चास्य लोचने।।
पक्वामाशययोस्तोदो हिक्का कासात्र कूजनम्।
चतुर्थे जायते वेगे शिरसश्चाति गौरवम्।।
कफप्रसेको वैवर्ण्यं पर्वभेदश्च पञ्चमे।
सर्वदोष प्रकोपश्च पक्वाधाने च वेदना।।
षष्ठेप्रज्ञा प्रणाशश्च भृशं चाप्यतिसार्यते।
स्कन्ध पृष्टकटीभङ्गः सन्निरोधश्च सप्तमे।।

(सु-क-2-34 to 39)

६६. स्थावरस्योपयुक्तस्य पूर्ववेगेथ जायते।
जिह्वायाश्श्यावता स्तंभो मूर्च्छा त्रासः क्लमो वमि।।

(अ -ह -उ -35- 11)

Indological Truths

षष्ठे संज्ञाप्रणाशश्च सुभृशं चातिसार्यते।
स्कन्धपृष्ठ कटीभङ्गो भवेन्मृत्युश्च सप्तमे।।

(अ-ह-उ-35-16)

६७. रक्तमांसवसा स्नायु तथास्थ्याद्यास्त्रयः क्रमात्।
आश्रयाः सप्तसप्तानामित्यालम्बयनोब्रवीत्।

(अ-सं-उ-40-35)

६८. धात्वान्तरेषु याः सप्त कलः पूर्वं प्रकीर्त्तिताः।
अतीत्य तासामेकैकां वेगं प्रकुरुते विषम्।।

(अ-सं-उ-40-37)

६९. तत्कालकल्पं कालेन कलामभ्येति यावता।
ऊह्यमानं समीरेण तावद्वेगान्तरं स्मृतम्।।

(अ-सं-उ-40-38)

७०. चतुष्पादां स्याच्चतुर्विधः, पक्षिणां त्रिविधः।

(च-चि-23-21)

७१. दोषस्थान प्रकृतीः प्राप्यान्यतमं ह्युदीरयति।।
स्याद्वातिकस्य वातस्थाने कफ पित्त लिङ्ग मीषन्तु।
तृण्मोहारति मूर्च्छा गलग्रह च्छर्दि फेनादि।।
पित्ताशयास्थितं पैत्तिकस्य कफवातयोर्विषं तद्वत्।
तृट्कास ज्वरवमथु क्लमदाहतमोतिसारादि।।
कफदेशगं कफस्य च दर्शयेद्वातापित्तयोश्चेषत्।
लिङ्गं श्वासगलग्रहकण्डू लालावमथ्वादि।।

(च-चि-23-28 to 30)

Indological Truths

७२. विषं यद्दोषभूयिष्ठं तं दोषं प्राक् प्रपद्यते।
आशये यस्य यस्यैव ततस्तदवतिष्ठते।
तज्जान् विकारान् कुरुते यान् सर्वेषूपदेक्ष्यति।।
(अ-सं-उ-40,21)

७३. चतुर्भिः षड्भिरष्टाभिर्हीनमध्योत्तमां यवैः।
मात्रां विषस्य मोलस्य प्रयुञ्जीत यथायथम्।।
(अ-सं-उ-48-6)

७४. दष्टस्य द्वौ यवौ कीटैस्तिलमात्रं तु वृश्चिकैः।
(अ-सं-उ-7)

७५. विषे प्रतिविषं योज्यं मन्त्रतन्त्रैरसिध्यति।
अतिते पञ्चमे वेगे सप्तमस्यानातिक्रमे।
प्रभोर्निवेद्य प्रयतो नैव वाख्याय कस्यचित्।।
(अ-सं-अ-48-1)

७६. विषपीतं च कुशलो दंशयेत् पवनाशिभिः।
न विषप्रतिमं किञ्चिन्निर्विषीकरणं विषे।।
(अ-सं-उ-48-5)

७७. क्षुत्तृष्णा घर्मदौर्बल्य क्रोधशोक भयश्रमैः।
अजीर्ण वर्चोद्रवता पित्तमारुत वृद्धिभिः।।
तिलपुष्प फलाघ्राण भूबाष्प घनगर्जितैः।
हस्ति मूषिक वादित्र निस्वनैर्विषसंघटैः।।
पुरोवातोल्पलामोद मदनैर्वर्द्धते विषम्।।
(अ-ह-उ-35-61,62)

Indological Truths

७८. अयत्नात् श्लेष्मकं साध्यं यत्नात् पित्ताशयाश्रयम्।
सुदुसाध्यमसाध्यं वा वाताशयगतं विषम्।

(अ-ह-उ-35-70)

७९. मन्त्रारिष्टोत्कर्तननिष्पीडन चूषणाग्निपरिषेकाः।
अवगाहरक्तमोक्षणवमन विरेकोपधानानि।
हृदयावरणाञ्जननस्य धूमलेहौषधप्रशमनानि।
प्रतिसारणं प्रतिविषं संज्ञासंस्थापनं लेपः।।
मृतसंजीवनमेव च विंशतिरेते चतुभिराधिकाः।
स्युरुपक्रमा यथा ये यत्र च योज्याः श्रृणु तथा तान्।।

(च-चि-23-35 to 37)

८०. आशये यस्य दोषस्य विषं तिष्ठति तं पुरः।
आश्रयाश्रयिणोर्विद्वानविरोधेन साधयेत्।।

(अ-सं-उ-40-173)

८१. क्षारागदः कफस्थानस्थिते स्वेदः सिराव्यधः।
पित्ते क्षोद्रपयोम्लाज्य पानसेकावगाहनम्।
स्वेदो वाताशये दध्ना पानं च नतकुष्ठयोः।।

(अ-सं-उ-40-174)

८२. काषायकटुतिक्तैश्च भोजनैः शमयेद्विषम्।
पौत्तिकं स्रंसनैः सेक प्रदेहैर्भृशशीतलैः।
कषाय तिक्त मधुरैर्घत युक्तैश्च भोजनैः।।

(अ-सं-उ-40-166)

Indological Truths

८३. क्षीरेणागद गर्भेण मदनस्य फलेन च।
आस्थापनं प्रयुञ्जीत वाताशयगते विषे।।

(अ-सं-उ-40-175)

वलया सोमराज्या वा पचेत् पाटलयाथवा।
घृतमण्ड समं तैलमानुवासनिकं परम्।।
विषोपद्रव पथ्यं च वीक्ष्य युञ्ज्याद्यथामयम्।।

(अ-सं-उ-40-178)

८४. प्रथमे विषवेगे तु वान्तं शीताम्बु सेचितम्।
अगदं मधु सर्पिभ्यां पाययेत समायुतम्।।
द्वितीये पूर्वद्वान्तं पाययेत्तु विरेचनम्।
त्रितीये गदपानं तु हितं नस्यं तथाञ्जनम्।।
चतुर्थे स्नेह संमिश्रं पाययेतागदं भिषक्।
पञ्चमे क्षौद्रमधुक क्काथयुक्तं प्रदापयेत्।।
षष्ठेतीसारवत् सिद्धिरवपीटश्च सप्तमे।
मूर्ध्नि काकपदं कृत्वा कासृग्वा पिशितं क्षिपेत्।।

(सु-क-2-40- to 43)

८५. वेगान्तरे त्वन्यतमे कृते कर्मणि शीतलाम्।
यवागूं सघृतक्षौद्रामिमां दद्याद्विषापहाम्।।
कोषातक्योग्निकः पाठासूर्यवल्यमृताभयाः।
शिरीषः किणिही शेलुर्गिर्याह्वा रजनीद्वयम्।।
पुनर्नवे हरेणुश्च त्रिकटुः सरिवे बला।

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एषां यवागूर्निष्काथे कृता हान्ति विषद्वयम्।।

(सु-क-2-44 to 46)

८६. नाघृतं स्रंसनं शस्तं प्रलेपो भोज्यमौषधम्।

(अ-ह-उ-35-69)

सर्वेषु सर्वावस्थासु विषेषु न घृतोपमम्।
विद्यते भेषजं किञ्चित् विशेषाद् प्रबलानिले।।

(आ-ह-उ-35-70)

८७. बृंहणो लङ्घनश्चेति तत्पर्यायावुदाहृतौ।

(अ-ह-सू-14-2)

८८. शोधनं शमनं चेति द्विधा तत्रपि लङ्घनम्।

(अ-ह-सू-14-2)

८९. अल्पस्यायि महार्थत्वं प्रभूतस्याल्प कर्मताम्।
कुर्यात् संयोग विश्लेष काल संस्कार युक्तिभिः।।

(च-क-12-48)

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